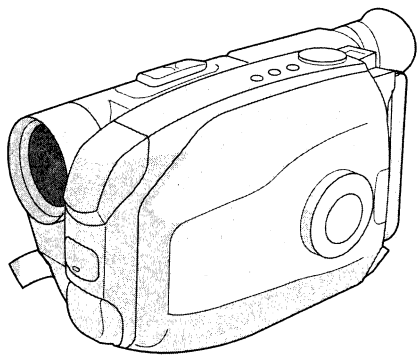
JVC

SERVICE MANUAL

COMPACT VHS CAMCORDER

GR-AX230U/AX430U/AX730U



Compact VHS

VHS C

SPECIFICATIONS

GENERAL

Format	: VHS NTSC standard
Power source	: DC 6V ⎓
Power consumption	
•GR-AX730 light on	: 7.8 W
•GR-AX730 light off / GR-AX430	: 5.1 W
•GR-AX230	: 5.0 W
Signal system	: NTSC-type
Video recording system	
Luminance	: FM recording
Color	: Converted sub-carrier direct recording Conforms to VHS standard
Cassette	: VHS C cassette
Tape speed	
SP	: 33.35 mm/sec. (1-5/16 ips)
EP	: 11.12 mm/sec. (7/16 ips)
Recording time (max.)	
SP	: 40 minutes
EP	: 120 minutes (with TC-40 cassette)
Operating temperature	: 0°C to +40°C (32°F to 104°F)
Operating humidity	: 35% to 80%
Storage temperature	: –20°C to +50°C (–4°F to 122°F)
Weight	
•GR-AX730	: Approx. 790 g (1.8 lbs)
•GR-AX430	: Approx. 780 g (1.8 lbs)
•GR-AX230	: Approx. 800 g (1.8 lbs)
Dimensions (Including viewfinder)	
•GR-AX730/AX430	: 113 (W) x 117 (H) x 222 (D) mm (4-1/2" x 4-5/8" x 8-3/4")
•GR-AX230	: 113 (W) x 117 (H) x 242 (D) mm (4-1/2" x 4-5/8" x 9-9/16")

CAMERA

Pick up	: 1/4" format CCD
Lens	: F1.6, f = 3.8 to 83.6 mm, 22:1 power zoom lens with auto iris and macro control, filter diameter4 6 mm
Viewfinder	: Electronic viewfinder with •0.55" color LCD (GR-AX730/AX430) •0.5" B/W CRT (GR-AX230)
White balance adjustment	: Auto/Manual adjustment

VIDEO

Output	: 1 Vp-p, 75 ohms, unbalanced (via VIDEO OUT connector)

AUDIO

Output	: –8 dBs, 1 k-ohm (via AUDIO OUT connector)

AC POWER ADAPTER/BATTERY CHARGER (AA-V15U)

Power requirement	
U.S.A. and Canada	: AC 120 V∿, 60 Hz
Other countries	: AC 110 V to 240 V∿, 50/60 Hz
Power consumption	: 23 W
Output	
Charge	: DC 8.5 V ⎓, 1.3 A
VTR	: DC 6.3 V ⎓, 1.8 A
arging system	: Constant current, peak detection, timer controlled
Dimensions	: 140 (W) x 42 (H) x 68 (D) mm (5-9/16" x 1-11/16" x 2-11/16")
Weight	: Approx. 300 g (0.71 lbs)

CASSETTE ADAPTER (C-P7U)

Dimensions	: 188 (W) x 25 (H) x 104 (D) mm (7-7/16" x 1" x 4-1/8")
Weight	: Approx. 240 g (0.53 lbs)

Provided Accessories ..... ☞ **pg. 6**

(Refer to the INSTRUCTIONS)

Optional Accessories

- **Battery Packs BN-V12U, BN-V22U, BN-V25U**
- **Car Battery Charger BH-V3U**
- **Battery Charger BH-VC10U**
- **Car Battery Cord AP-V7U/AP-V8U**
- **RF Unit RF-V5U**
- **Compact VHS-C Cassettes TC-40/30/20**
- **Active Carrying Bag CB-V7U**
- **Remote Control Unit RM-V700U**
- **Battery Case CU-V170U**
- **Shoe Adapter CU-V418U**
- **LCD Monitor LT-V18U**

Some acccessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

Specifications shown are for SP mode unless otherwise indicated.
E. & O. E. Design and specifications subject to change without notice.

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The following table lists the differing points between Models (GR-AX230U/U(C), GR-AX430U/U(C) and GR-AX730U/U(C) in this series.

	GR-AX230U/U(C)	GR-AX430U/U(C)	GR-AX730U/U(C)
VIEW FINDER	BLACK/WHITE	COLOR	COLOR
TALLY LAMP	×	←	○
DC LIGHT	×	←	○
IR SENSOR	×	←	○
REMOCON	×	←	RM-V705U

NOTE: × NOT USED ○ USED
Mark ← is same as at left.
U/U(C) is this manual mean U for USA and U(C) for CANADA.

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

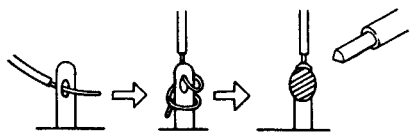


Fig. 1

7. Observe that wires do not contact heat producing parts (heat-sinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

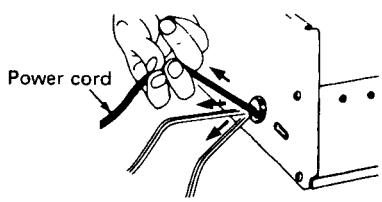


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

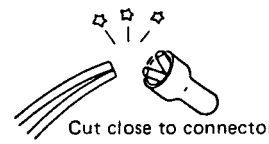


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

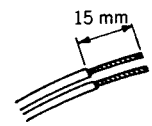


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

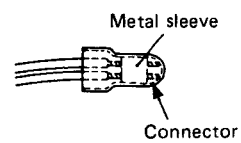


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

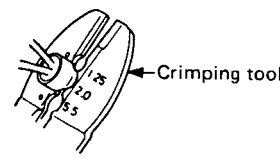


Fig. 6

(5) Check the four points noted in Fig. 7.

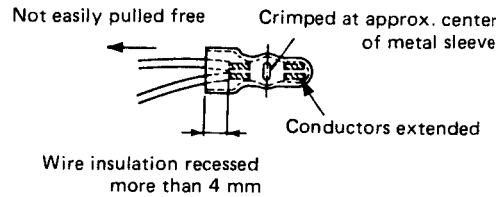

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

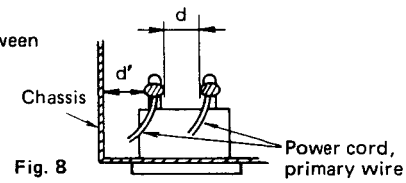


Fig. 8

4. Leakage current test

Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method: (Power ON)

Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

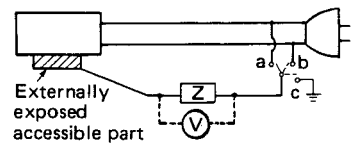


Fig. 9

5. Grounding (Class I model only)

Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).

Measuring Method:

Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

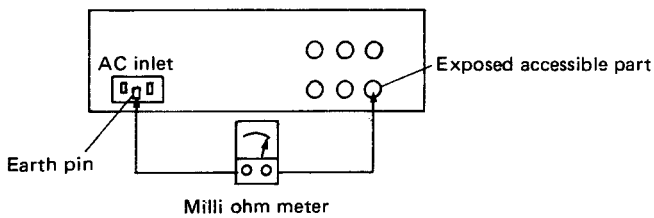


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF, 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

INSTRUCTIONS

Dear Customer,
Thank you for purchasing the JVC Compact VHS camcorder. Before use, please read the safety information and precautions contained in the following pages to ensure safe use of your new camcorder.

Using This Instruction Manual
- All major sections and subsections are listed in the Table Of Contents (☞ pg. 7).
- Notes appear after most subsections. Be sure to read these as well.
- Basic and advanced features/operation are separated for easier reference.

It is recommended that you . . .
..... refer to the Index (☞ pgs. 51 – 54) and familiarize yourself with button locations, etc. before use.
..... read thoroughly the Safety Precautions and Safety Instructions that follow. They contain extremely important information regarding the safe use of your new camcorder.

You are recommended to carefully read the cautions on pages 55 and 56 before use.

SAFETY PRECAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK. DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The AA-V15U AC Power Adapter/Charger should be used with:
AC 120 V~, 60 Hz in the USA and Canada,
AC 110 – 240 V~, 50/60 Hz in other countries.

CAUTION (applies to the AA-V15U)
TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION (s'applique à l'AA-V15U)
POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

Warning on lithium battery
The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
Replace the battery with Maxell, Panasonic (Matsushita Electric), Sanyo or Sony CR2025; use of another battery may present a risk of fire or explosion.
- Dispose of used battery promptly.
- Keep away from children.
- Do not disassemble and do not dispose of in fire.

NOTES:
- *The rating plate (serial number plate) and safety caution are on the bottom and/or the back of the main unit.*
- *The rating plate (serial number plate) of the AC Power Adapter/Charger is on its bottom.*

This Class B digital apparatus meets all requirements of the Canadian Interference – Causing Equipment Regulations.

"Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada."

This camcorder is designed to be used with NTSC-type color television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the BN-V11U/V12U/V22U/V25U battery packs and, to recharge them, the provided multi-voltage AC Power Adapter/Charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

ATTENTION:
The product that you have purchased is powered by a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

IMPORTANT PRODUCT SAFETY INSTRUCTIONS

Electrical energy can perform many useful functions. But improper use can result in potential electrical shock or fire hazards. This product has been engineered and manufactured to assure your personal safety. In order not to defeat the built-in safeguards, observe the following basic rules for its installation, use and servicing.

ATTENTION:
Follow and obey all warnings and instructions marked on your product and its operating instructions. For your safety, please read all the safety and operating instructions before you operate this product and keep this manual for future reference.

INSTALLATION

1. Grounding or Polarization
(A) Your product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.
If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
(B) Your product may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature.
If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

2. Power Sources
Operate your product only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. If your product is intended to operate from battery power, or other sources, refer to the operating instructions.

3. Overloading
Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

4. Power Cord Protection
Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

5. Ventilation
Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered.
- Do not block the openings by placing the product on a bed, sofa, rug or other similar surface.
- Do not place the product in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

6. Wall or Ceiling Mounting
The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

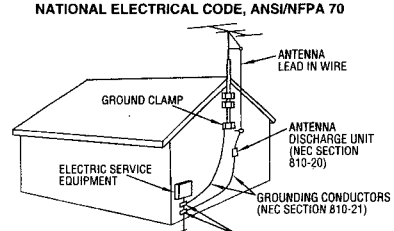
ANTENNA INSTALLATION INSTRUCTIONS

1. Outdoor Antenna Grounding
If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

2. Lightning
For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

3. Power Lines
An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE, ANSI/NFPA 70


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250. PART H)

NEC – NATIONAL ELECTRICAL CODE

USE

1. Accessories

To avoid personal injury:

- Do not place this product on an unstable cart, stand, tripod, bracket or table. It may fall, causing serious injury to a child or adult, and serious damage to the product.
- Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product.
- Use a mounting accessory recommended by the manufacturer and follow the manufacturer's instructions for any mounting of the product.
- Do not try to roll a cart with small casters across thresholds or deep-pile carpets.

2. Product and Cart Combination

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

3. Water and Moisture

Do not use this product near water—for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool and the like.

PORTABLE CART WARNING (Symbol provided by RETAC)

4. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

5. Attachments

Do not use attachments not recommended by the manufacturer of this product as they may cause hazards.

6. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

7. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

SERVICING

1. Servicing

If your product is not operating correctly or exhibits a marked change in performance and you are unable to restore normal operation by following the detailed procedure in its operating instructions, do not attempt to service it yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

2. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the product.
c. If the product has been exposed to rain or water.
d. If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
e. If the product has been dropped or damaged in any way.
f. When the product exhibits a distinct change in performance—this indicates a need for service.

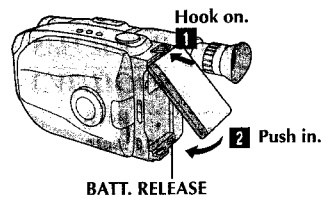
3. Replacement Parts

When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

4. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

SUPPLY POWER



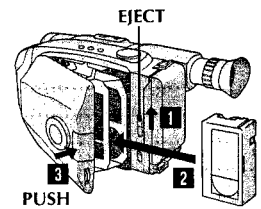
Using the battery pack

1 Hook-on the battery pack's top end to the camcorder. (Charging procedure, ☞ pg. 8)
2 Push in the battery pack until it locks into place.

To remove the battery pack

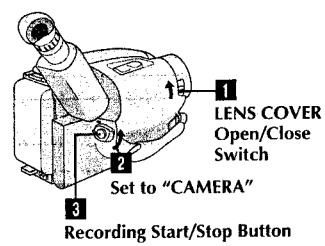
Slide **BATT. RELEASE** and pull out the battery pack.

INSERTING A VIDEO CASSETTE



1 Slide **EJECT** to open the cassette holder.
2 Insert a video cassette.
3 Press **PUSH** to close the cassette holder.
(For more details, ☞ pg. 13)

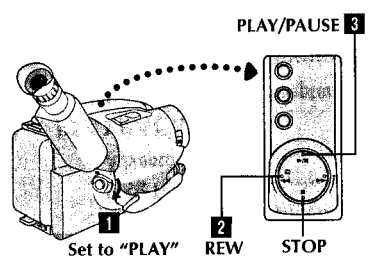
SHOOTING



1 Slide the **LENS COVER** Open/Close Switch to open the lens cover.
2 Set the Power Switch to "CAMERA".
— The power indicator will light and an image will appear.
3 Press the Recording Start/Stop Button.
— Recording starts.
- To stop recording temporarily, momentarily press the Recording Start/Stop Button once again.

(For more details, ☞ pgs. 16, 17)

PLAYBACK



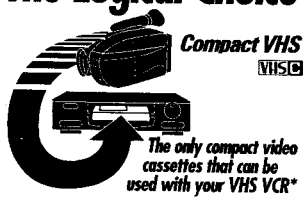
1 Set the Power Switch to "PLAY".
2 Press **REW**.
— The tape will automatically stop at the beginning of the tape.
3 Press **PLAY/PAUSE**.
— Playback starts and the playback picture appears.
- To stop playback, press **STOP**.

(For more details, ☞ pg. 36.)

Or simply play back the tape on a VHS VCR using the Cassette Adapter (VHS Playpak). ☞ pg. 34

REMEMBER

The Logical Choice



Integrated Auto Light
(GR-AX730 only) (☞ pg. 21)

5Sec.-Rec (5 sec. Recording)
(☞ pg. 19)

22x Optical Hyper Zoom
(☞ pg. 18)

Zoom-in

Zoom-out

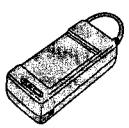
Program AE with Special Effects (☞ pg. 22)

- Auto Mode Lock
- Auto Mode Release
- Electronic Fog Filter ■ ND Effect
- Sepia ■ Twilight ■ Sports
- 1/1000 sec. High Speed Shutter
- 1/2000 sec. High Speed Shutter

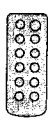
Program Manager II
(☞ pg. 22 – 33)

Program AE with Special Effects, Fader, Wide, Super LoLux, Instant Title, Menu Adjustment (Focus, Exposure Control and so on.)

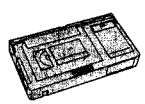
PROVIDED ACCESSORIES



• AC Power Adapter/ Charger AA-V15U



• Remote Control Unit RM-V705U (GR-AX730 only)



• Cassette Adapter (VHS Playpak) C-P7U

• AA(R6) Size Battery for Cassette Adapter x 1 (GR-AX730 only)

• DC Cord

• Shoulder Strap

• Battery Pack BN-V11U

• Lithium Battery CR2025
- x 2 for GR-AX730 (clock operation and remote control unit)
- x 1 for GR-AX430/AX230 (clock operation)

VHSC HQ

Cassettes marked VHSC can be used with this camcorder.

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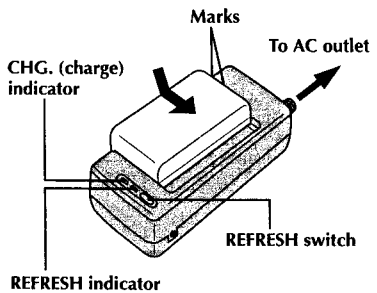
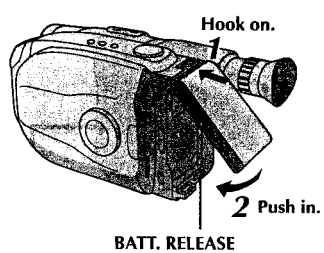


REFRESH

The AC power adapter features a REFRESH function that allows you to fully discharge the battery pack before recharging. Perform the REFRESH function after no less than 5 chargings.

To discharge the battery . . .

..... attach the battery pack to the adapter as shown in the above illustration. Then push REFRESH. The REFRESH indicator lights when discharging starts, and goes out when discharging is complete.



ATTENTION:

Before detaching the power source, make sure that the camcorder's power is turned off. Failure to do so can result in a camcorder malfunction.

Power

This camcorder's 3-way power supply system lets you choose the most appropriate source of power.

NOTES:

- *No function is available without power supply.*
- *Use only specified power supply.*
- *Do not use provided power supply units with other equipment.*

CHARGING THE BATTERY PACK

1 SUPPLY POWER

Connect the charger's AC power cord to a wall outlet.

2 ATTACH BATTERY PACK

Align the marks and slide the battery pack in the direction of the arrow until it locks in place.

- The CHG. indicator begins blinking to indicate charging has started.

3 DETACH BATTERY PACK

When the CHG. indicator stops blinking but stays lit, charging is finished. Slide the battery pack opposite the direction of the arrow.

BATT. PACK	CHARGE	DISCHARGE
BN-V11U	approx. 1 hr. 10 min.	approx. 3 hrs. 30 min.
BN-V12U	approx. 1 hr. 10 min.	approx. 3 hrs. 30 min.
BN-V22U	approx. 2 hrs. 10 min.	approx. 7 hrs.
BN-V25U	approx. 2 hrs. 40 min.	approx. 10 hrs.

USING THE BATTERY PACK

1 ATTACH BATTERY PACK

Hook its top end to the camcorder and push the battery pack in until it locks in place.

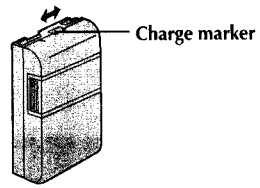
2 DETACH BATTERY PACK

Slide **BATT. RELEASE** and pull out the battery pack.

Approximate recording time (unit: min.)

BATT. PACK	GR-AX730/AX430	GR-AX230
BN-V11U	75 (40)	75
BN-V12U	75 (40)	75
BN-V22U	150 (95)	155
BN-V25U	200 (125)	200

( ) : when the video light is on. (GR-AX730 only)

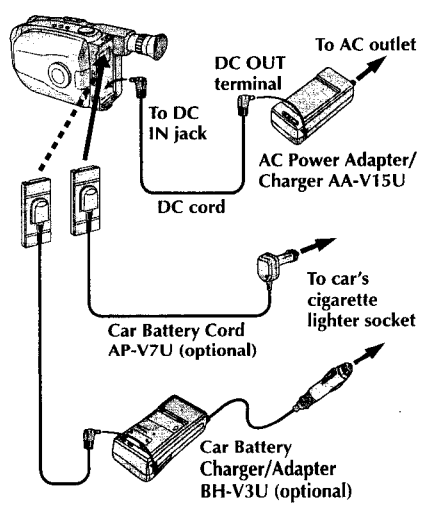


CHARGE MARKER

A charge marker is provided on the battery pack to help you remember whether it has been charged or not. Two colors are provided (red and black)—you choose which one means charged and which means discharged.

NOTES:

- *The recording time per charge is affected by such factors as the time spent in Record-Standby mode and the frequency of zooming. It is safer to have spare battery packs.*
- *Charging times noted on page 8 are for fully discharged battery pack, and discharging times are for fully charged battery pack.*
- *Charging and discharging times vary according to the ambient temperature and the status of the battery pack.*
- *Remember to set the charge marker after charging a battery pack or after detaching a discharged one from your camcorder.*
- *Perform the REFRESH function after no less than 5 chargings.*
- *While the AC Power Adapter/Charger's power cord is disconnected from the AC outlet, it is possible to discharge the battery by pressing the REFRESH switch. During that time, the AC Power Adapter/Charger does not charge the battery. When disharging is complete, detach the battery from the AC Power Adapter/Charger to store it.*
- *High temperatures can damage the battery pack, so use only where good ventilation is available. Don't allow it to discharge in container, such as a bag.*
- *If you stop recharging or discharging part way through, make sure to remove the battery pack before unplugging the adapter's AC cord.*
- *Remove the battery pack from the adapter immediately after discharging.*
- *To avoid interference with reception, do not use the AC Power Adapter/Charger near a radio.*
- *Make sure you unplug the DC cord before charging or discharging the battery pack.*
- *The CHG. indicator may not light properly with a brand new battery pack, or with one that's been stored for an extended period. In this case, remove and reattach the battery pack and recharge it. The CHG. indicator should blink during recharging. If not, contact your nearest JVC dealer.*


To AC outlet
DC OUT terminal
To DC IN jack
AC Power Adapter/ Charger AA-V15U
DC cord
To car's cigarette lighter socket
Car Battery Cord AP-V7U (optional)
Car Battery Charger/Adapter BH-V3U (optional)

USING A CAR BATTERY

Use the optional Car Battery Cord or Car Battery Charger/Adapter (connect as shown in the illustration to the left).

NOTES:

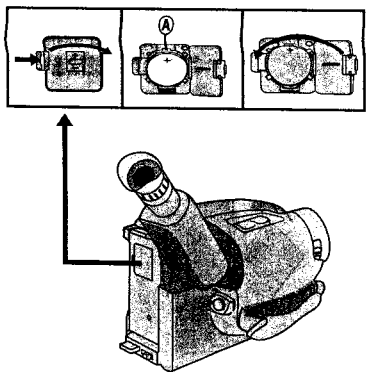
- *When using the car battery, leave the engine idling.*
- *The optional Car Battery Charger (BH-V3U) can also be used to charge the battery pack.*
- *When using the optional Car Battery Charger or Car Battery Cord (AP-V7U), refer to the respective instruction booklet.*

USING AC POWER

Use the AC Power Adapter (connect as shown in the illustration to the left).

NOTE:

The supplied AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.



Clock (Lithium) Battery Insertion/Removal

This battery is necessary for clock operation and to perform date/time settings.

1 SWITCH OFF POWER
Switch off the unit's power and remove the power supply unit.

2 OPEN COVER
Open the clock battery compartment cover while pressing the release tab.

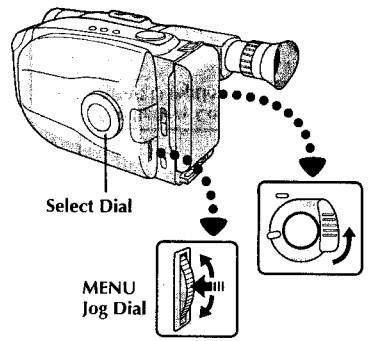
3 REMOVE BATTERY (when replacing)
Insert a pointed, non-metallic object between the battery and the compartment (Ⓐ) and pull the battery out.

4 INSERT BATTERY
Ensure that the plus (+) side is up and insert a CR2025 lithium battery and push it in.

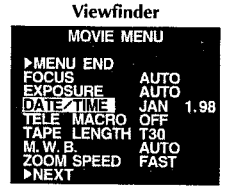
5 CLOSE COVER
Close the compartment cover until it clicks in place.

NOTE:

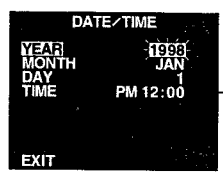
See "SAFETY PRECAUTIONS" (☞ pg. 2) for information on safe handling of lithium batteries.



Viewfinder

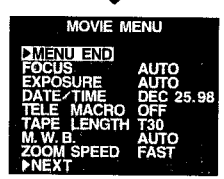


Menu Screen



12-hour indication with AM or PM

DATE/TIME Setting Menu



Date/Time Setting

1 ACCESS MENU SCREEN
First set the Power Switch to "CAMERA". Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial.

2 SELECT FUNCTION
Rotate the MENU Jog Dial to move the highlight bar to "DATE/TIME", then press it. The DATE/TIME Setting Menu appears.

- If you decide you want to return the date and time to the previous settings, rotate the MENU Jog Dial to move highlight bar to "EXIT" and press it, then go to step **6**.
- If you want to set only the time without changing the date, go to step **4**.

3 SET DATE
Rotate the MENU Jog Dial to move the highlight bar to the item you want to set and then press it. When the setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. The setting stops blinking.

- Repeat this procedure until you're satisfied with the Date settings ("YEAR", "MONTH" and "DAY").

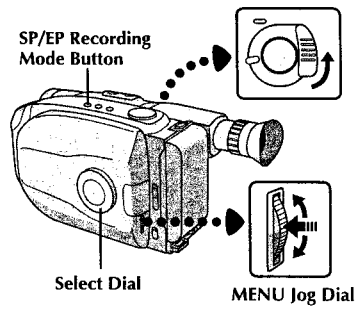
4 SET TIME
Rotate the MENU Jog Dial to move the highlight bar to "TIME" and then press it. When the hour setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. When the hour setting stops blinking and the minute setting begins blinking, rotate the MENU Jog Dial until the correct setting appears and then press it. The minute setting stops blinking.

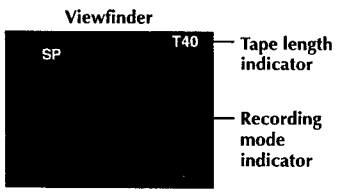
5 START CLOCK OPERATION
When none of these settings (YEAR, MONTH, DAY, TIME) blinks, rotate the MENU Jog Dial to move the highlight bar to "EXIT", and press it. The Menu Screen appears and "MENU END" is highlighted.

6 CLOSE MENU
Press the MENU Jog Dial.

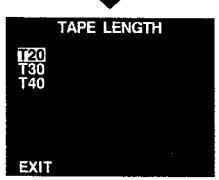
NOTE:

To display the date and time in the viewfinder and on a connected TV, see "Date/Time Insert" (☞ pg. 20).

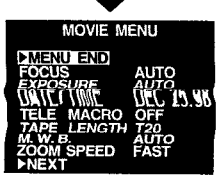




Menu Screen



TAPE LENGTH Setting Menu



Recording Mode Setting

Set depending on your preference.

1 SET RECORDING MODE

First set the Power Switch to "CAMERA". Press **SP/EP** Button for more than 1 second. "SP" (Standard Play) provides higher picture and sound quality and is better for dubbing, while "EP" (Extended Play) is more economical, providing three times as the recording time.

NOTE:

If the recording mode is switched during recording, the playback picture will be blurred at the switching point.

Tape Length Setting

Set the tape length according to the length of the tape used.

1 ACCESS MENU SCREEN

First set the Power Switch to "CAMERA". Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial.

2 SELECT FUNCTION

Rotate the MENU Jog Dial to move the highlight bar to "TAPE LENGTH", then press it. The TAPE LENGTH Setting Menu appears.

3 SET TAPE LENGTH

Rotate the MENU Jog Dial to move the highlight bar to the correct setting. T20=20 minutes of recording time, T30=30 minutes, and T40=40 minutes (in SP).

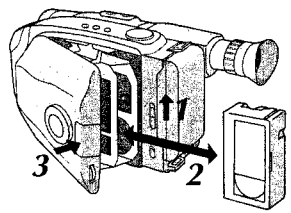
- If you decide you want to return the tape length to the previous setting, rotate the MENU Jog Dial to move the highlight bar to "EXIT".

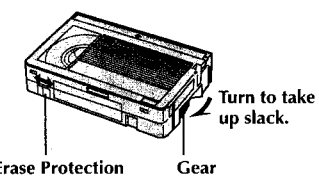
4 CLOSE MENU

Press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is on "MENU END". Then press the MENU Jog Dial again to close the Menu Screen.

NOTES:

- *The displayed tape remaining time (☞ pg. 17) is correct only if the correct tape length has been selected.*
- *Once you have set the tape length, it remains unchanged even if the Select Dial is returned to AUTO LOCK.*





Loading/Unloading A Cassette

1 OPEN CASSETTE HOLDER

Slide **EJECT** until the holder opens. Do not use force to open.

2 INSERT/REMOVE CASSETTE

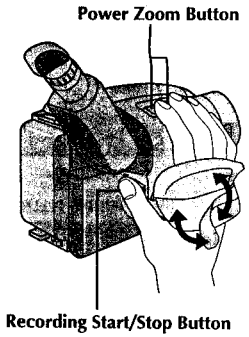
Make sure the label is facing outward.

3 CLOSE CASSETTE HOLDER

Press **PUSH** and make sure the holder is closed and locked.

NOTES:

- *A cassette holder can't be opened unless a power supply is attached.*
- *Make sure that the tape is not slack when loading the cassette. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up the slack.*
- *Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.*
- *The cassette holder can't be opened while the camcorder is in the record mode.*

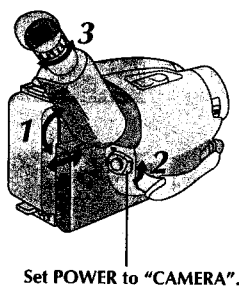


Grip Adjustment

1 EXPAND LOOP
Separate the Velcro strip.

2 INSERT HAND
Pass your right hand through the loop and grasp the grip.

3 ADJUST STRAP LENGTH
Adjust so your thumb and fingers can easily operate the Recording Start/Stop Button and Power Zoom Button. Refasten the Velcro strip.

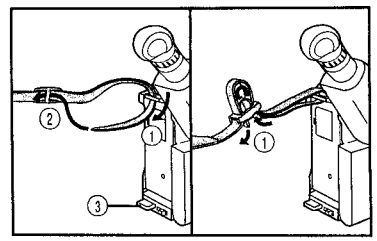


Viewfinder Adjustment

1 POSITION VIEWFINDER
Adjust the viewfinder manually for best viewability (see illustration at left).

2 SELECT MODE
Set the Power Switch to CAMERA.

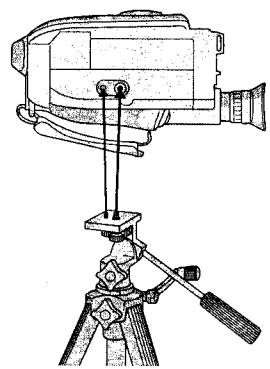
3 ADJUST DIOPTER
Turn the Diopter Adjustment Control until the indications in the viewfinder are clearly focused.



Shoulder Strap Attachment

1 ATTACH STRAP
Following the illustration at left, thread the strap through the top of the eyelet ①, then fold it back and thread it through the buckle ②. Repeat the procedure to attach the other end of the strap to the other eyelet ③, making sure the strap isn't twisted.

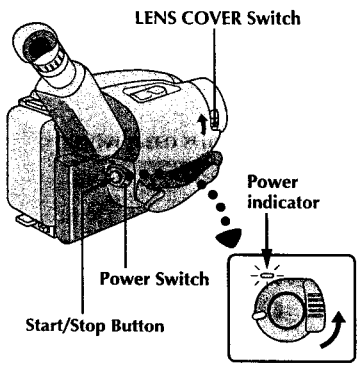
2 ADJUST LENGTH
Adjust as shown in the illustration at left ①.

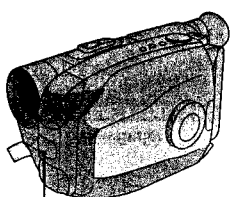


Tripod Mounting

1 ALIGN AND TIGHTEN
Align the screw and camera direction stud on the tripod with the camera's mounting socket and stud hole. Then tighten the screw.

CAUTION:
When using a tripod, be sure to open and extend its legs fully to stabilize the camcorder. To prevent damage to the unit caused by falling over, do not use a small-sized tripod.





NOTE:

You should already have performed the procedures listed below. If not, do so before continuing.

- *Power (☞ pg. 8)*
- *Recording Mode/Tape Length Setting (☞ pg. 12)*
- *Grip Adjustment (☞ pg. 14)*

1 LOAD A CASSETTE

Slide **EJECT** to open the cassette holder, then insert the cassette with the label facing out. Press **PUSH** to ensure the holder is closed and locked.

2 ENTER RECORD-STANDBY MODE

Slide the **LENS COVER** Open/Close Switch to open the lens cover, then set the Power Switch to CAMERA.

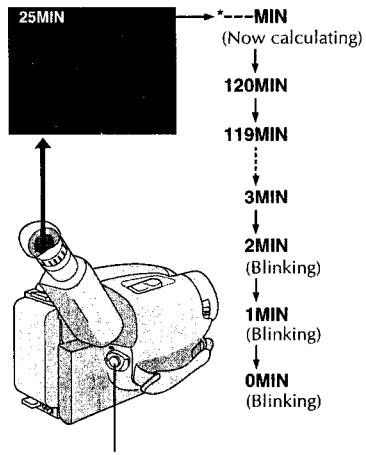
- The power indicator lights and the camcorder enters the Record-Standby mode.
- The scene you're aimed at appears on the viewfinder screen, with the word "PAUSE" superimposed upon it.

3 START SHOOTING

Press the Recording Start/Stop Button.

- "REC ▶▶▶" appears in the viewfinder while recording is in progress.

Tape remaining time indicator



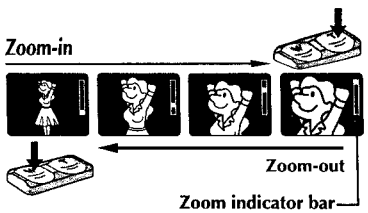
4 STOP RECORDING

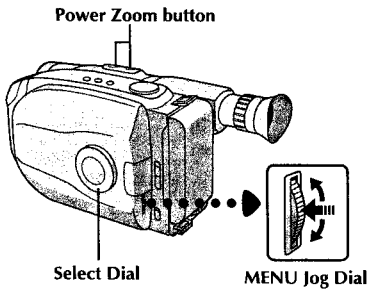
Press the Recording Start/Stop Button again to stop recording.

- The camcorder re-enters the Record-Standby mode.

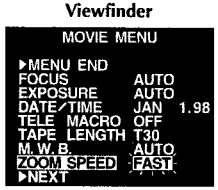
NOTES:

- *A cassette holder can't be opened unless a power supply is attached.*
- *There may be a delay after you slide EJECT until the holder opens. Do not use force.*
- *The displayed remaining time is approximate.*
- *The time required to calculate the remaining tape length, and the accuracy of the calculation, may vary according to the type of tape used.*
- *The tape remaining time indicator is correct only if the correct tape length has been selected (☞ pg. 12).*
- *"TAPE END" appears when the tape reaches its end, and the power goes off automatically if left in this condition for 5 minutes. "TAPE END" also appears when a cassette whose tape is already at its end is loaded.*
- *If the Record-Standby mode continues for 5 minutes without performing Zoom or any other operations, the camcorder's power shuts off automatically. Set the Power Switch to "POWER OFF", and then back to "CAMERA" to turn the camcorder on again.*
- *If the Recording Start/Stop Button is pressed after the Record-Standby mode has continued for over 5 minutes, recording may not start immediately.*
- *If you're recording on a cassette from the middle (such as when a tape is removed and re-inserted during recording), use the Retake function (☞ pg. 19) to find the end of the last recording so you don't erase any of it.*
- *The LENS COVER warning blinks for about 5 seconds when the camcorder is turned on when the cover is closed.*

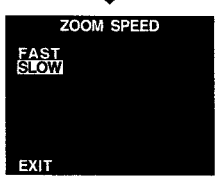




Viewfinder



Menu Screen



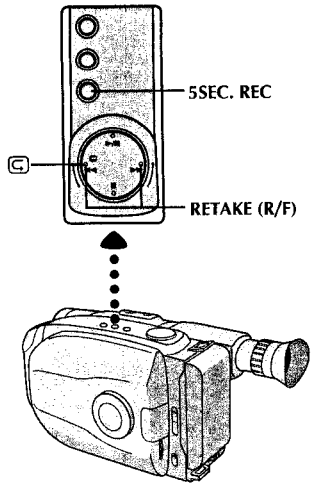
ZOOM SPEED Setting Menu

FEATURE:	**Zooming**
PURPOSE:	To produce the zoom in/out effect, or an instantaneous change in image magnification.
OPERATION:	***Zoom In*** Press the "T" of the Power Zoom Button. ***Zoom Out*** Press "W" of the Power Zoom Button. ■ Zooming speed is available. A total of 4 zoom speeds are available. 2 speeds can be selected depending on how hard the Power Zoom Button is pressed (press the button fully for regular-speed, press it lightly for slow-speed), while 2 speed levels (FAST/SLOW) can be selected in the ZOOM SPEED Menu depending on the overall speed you prefer. The combinations of zoom speeds are shown in the chart below. ***Changing the ZOOM SPEED in the Menu*** **1)** Set the Select Dial to any position except AUTO LOCK and press the MENU Jog Dial. The Menu Screen appears. **2)** Rotate the MENU Jog Dial to move the highlight bar to "ZOOM SPEED", then press it. The ZOOM SPEED Setting Menu appears. **3)** Rotate the MENU Jog Dial to move the highlight bar to the desired speed and press it twice. The Menu Screen disappears and setting is completed.
NOTE:	*Focusing may become unstable during Zooming. In this case, set the zoom while in Record–Standby, lock the focus by using the manual focus (☞ pg. 29), then zoom in or out in Record mode.*

Zooming Speed (1 – 4 in order of speed)

"ZOOM SPEED" in the Menu Screen	Pressing the Power Zoom Button	
	fully	lightly
FAST	1 (fastest)	3
SLOW	2	4 (slowest)

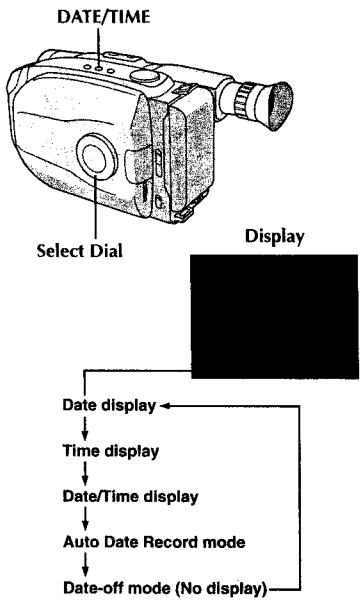
: when the Select Dial is set to AUTO LOCK.

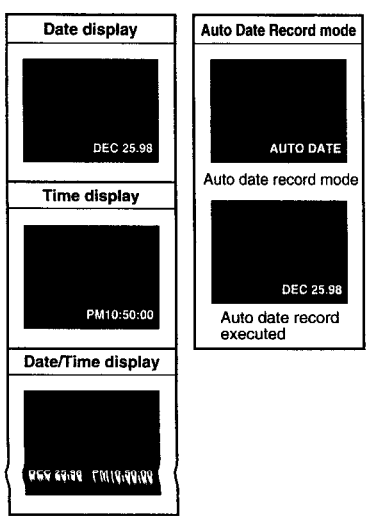


Viewfinder

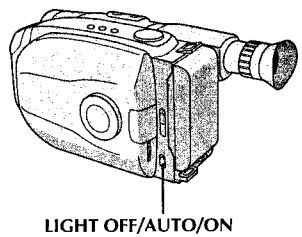
5Sec. Rec mode indicator

FEATURE:	**Quick Review**
PURPOSE:	To check the end of the last recording.
OPERATION:	**1)** Press "⏪" and release quickly during the Record-Standby mode. ■ Tape is rewound for about 2 seconds and played back automatically, then pauses in Record-Standby mode for the next shot.
NOTE:	*Distortion may occur at start of playback. This is normal.*
FEATURE:	**Retake**
PURPOSE:	To re-record certain segments.
OPERATION:	**1)** Make sure the camcorder is in the Record-Standby mode. **2)** Press either **RETAKE** button to reach the start point for new recording. Pressing "F" forwards the tape and pressing "R" reverses it. **3)** Press Recording Start/Stop Button to start recording.
NOTE:	*Noise may appear during Retake. This is normal.*
FEATURE:	**5Sec. Rec (5-sec. Recording)**
PURPOSE:	To record a scene for 5 seconds, providing quick scene transitions like those seen in TV programmes.
OPERATION:	**1)** During Record-Standby, press **5SEC. REC**. "5S" appears and 5Sec. Rec is reserved. **2)** Press Recording Start/Stop Button. Recording starts, and after 5-second recording is finished, the camcorder reenters the Record-Standby mode automatically. ■ To cancel the 5Sec. Rec. function, press **5SEC. REC** again so that "5S" disappears.
NOTE:	*The Fader (☞ pg. 24) cannot be activated by pressing **5SEC. REC**.*





FEATURE:	**Date/Time Insert**
PURPOSE:	To display the date and time in the viewfinder or on a connected color monitor, as well as to record them manually or automatically.
OPERATION:	**1)** Turn the Select Dial to any position except AUTO LOCK. **2)** Choose a display mode by pressing **DATE/TIME** repeatedly while in Record-Standby to cycle through the modes as shown in the illustration at left. ■ You should have already performed the Date/Time Setting procedure (☞ pg. 11). If you haven't, do so first.
NOTES:	***DISPLAY*** ● *The selected display can be recorded.* ● *If you don't want to record the display, select the Date-off mode before shooting.* ● *If you want to delete the display during shooting, press **DATE/TIME**.* ● *To recall the display, engage the Record-Standby mode and press **DATE/TIME** repeatedly until the desired display appears.* ***AUTO DATE RECORD*** ● *Your camcorder automatically records the date for about 5 seconds after recording is initiated in the following situations:* • *After changing the date.* • *After loading a cassette.* • *After Auto Date Record mode is selected by pressing **DATE/TIME**.* *In this mode, the date is replaced after 5 seconds with "AUTO DATE" but this is not recorded.* ● *Setting the Select Dial to AUTO LOCK always engages the Auto Date Record mode, and disables all other modes.*

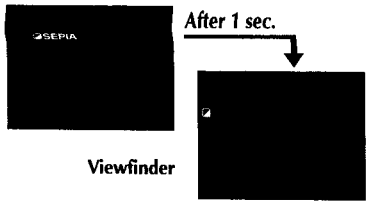


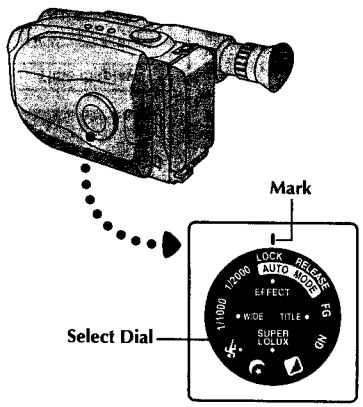
DANGER

- The video light can become extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot for some time.
- When operating, keep a distance of about 30 cm. (1 ft.) between the video light and people or objects.
- Do not use near flammable or explosive materials.
- It is recommended that you consult your nearest JVC dealer for replacing the video light.

FEATURE:	**Video Light (GR-AX730 only)**
PURPOSE:	To brighten the scene when natural lighting is too dim.
OPERATION:	**1)** Set the **LIGHT OFF/AUTO/ON** Switch as required: **ON** : Always keeps the light on as long as the camcorder is turned on. **AUTO** : Automatically turns on the light when the camcorder senses insufficient lighting on the subject. **OFF** : Turns off the light. ■ The video light can only be used with the camcorder's power on. ■ It is recommended to set the white balance (☞ pg. 31) to HALOGEN mode (☀) when you use the video light. ■ When not using the video light, turn it off to save battery power.
NOTES:	● *Even if the battery indicator (▭) does not blink if the battery pack's charge is low, the camcorder may turn off automatically when you turn on the video light, or when you start recording with the video light turned on.* ● *When the **LIGHT OFF/AUTO/ON** Switch is set to "AUTO":* • *Depending on the lighting conditions, the video light may keep turning on and off. In this case, manually switch the light on or off using the **LIGHT OFF/AUTO/ON** switch.* • *While the Sports or High-Speed Shutter mode (☞ pg. 23) is engaged, the light is likely to stay on.* • *While the Twilight mode (☞ pg. 23) is engaged, the light will not activate.*

1 second later, the mode is activated.





Program AE With Special Effects

All you have to do to access any of the variety of shooting effects is to turn the Select Dial.

1 SELECT MODE

Turn the Select Dial until the symbol of the function you want is aligned with the mark.

- The selected mode's name and its indication are displayed for approx. 1 second. Then the name disappears, and only the indication remains. The mode is activated.
- When Auto Mode Lock or Auto Mode Release mode is selected, only the mode's name is displayed. Then the name disappears and the mode is activated.

NOTES:

- *Only one effect can be engaged at a time.*
- *The screen becomes slightly reddish when the Fader (☞ pg. 24) is used in the Sepia mode.*
- *The screen becomes slightly dark in the High Speed Shutter mode. Use in well-lit situations.*
- *In the High Speed Shutter or Sports modes, picture color may be adversely affected if subject is lit by alternating discharge-type light sources such as flourescent or mercury-vapor lights.*

Dial symbol	Viewfinder indication	Mode
LOCK	AUTO LOCK	Auto Mode Lock

Auto Mode Lock
Locks the camcorder in Full Auto mode, preventing incorrect operation due to accidental button pressing during shooting.
- In this mode the following controls are disabled; DATE/TIME display select, and the Menu Jog Dial.

RELEASE	AUTO RELEASE	Auto Mode Release

Auto Mode Release
Re-enables the controls that were disabled by Auto Mode Lock.

FG	FG : FOG	Electronic Fog Filter

Electronic Fog Filter
Makes the picture look misty white, as when an external fog filter is attached to the lens. Softens the image and gives it a "fancy" look.

ND	ND:ND EFFECT	ND Effect

ND Effect
A black mist darkens the picture, as when an ND filter is used. Helps to counter the effects of glare on the subject.

	SEPIA	Sepia

Sepia
The scene being shot is recorded in sepia-tinted (reddish-brown) monochrome, giving the effect of an older movie. Use together with Wide (☞ pg. 24) for the authentic look of a classic Hollywood movie.

Dial symbol	Viewfinder indication	Mode
	TWILIGHT	Twilight

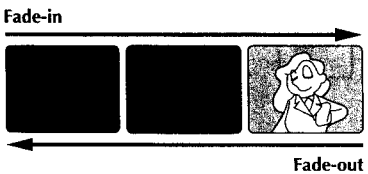
Twilight
Dusk, twilight scenery, fireworks, etc., look more natural and dramatic. The following happens when Twilight mode is selected:
- Auto gain control is turned off.
- White Balance is set to "☀" (FINE day mode), but can also be manually changed to another mode (☞ pg. 31).
- Auto Focus becomes available only in the range of 10 m (33 ft.) to infinity. To focus when the subject-to-camera distance is less than 10 m (33 ft.), use manual focusing (☞ pg. 29).

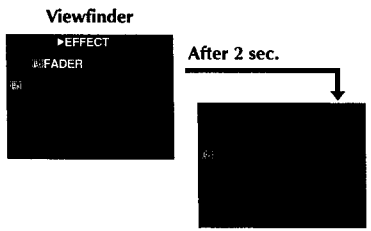
	SPORTS	Sports

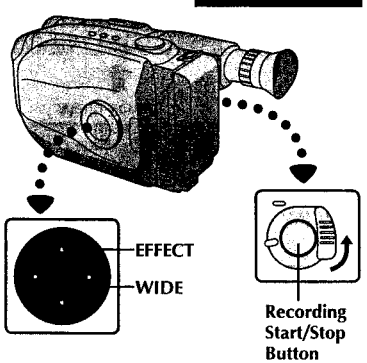
Sports
High shutter speed clearly captures fast-moving action.

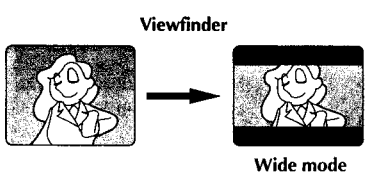
1/1000	1 S 1/1000	1/1000 sec. High Speed Shutter
1/2000	2 S 1/2000	1/2000 sec. High Speed Shutter

High-Speed Shutter (1/1000s., 1/2000s.)
Captures faster action than Sports mode.









Fader

This feature allows smooth fade-in and fade-out to black blank screen. Fade-in works at recording start, and fade-out works at recording end or when you enter Record-Standby mode.

1 ENGAGE FADE-STANDBY MODE

Press **EFFECT** to engage the Fade-Standby mode.

- "Bk FADER" is displayed for approx. 2 seconds. Then "BLACK FADER" disappears, and only "Bk" remains.

2 START OR END RECORDING

Press Recording Start/Stop Button to activate fade-in or fade-out.

3 TO CANCEL FADE-STANDBY MODE

While "Bk" is displayed, press **EFFECT**.

- "OFF" is displayed for approx. 2 seconds and the fade-standby mode is canceled.

NOTES:

- *Pressing and holding the Recording Start/Stop Button allows you to record a black blank screen.*
- *The screen becomes slightly reddish when the Fader is used with Sepia (☞ pg. 23).*
- *With the Electronic fog filter mode (☞ pg. 23) engaged, the image fades in/out to a white screen.*

Wide

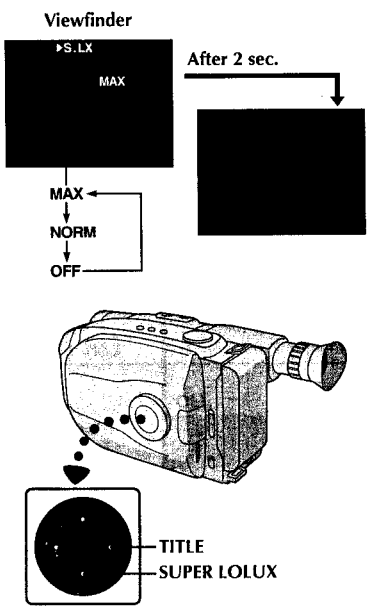
This feature allows you to record black bars at the top and bottom of the screen to produce a cinema-like "wide-screen" effect.

1 ENGAGE WIDE MODE

Press **WIDE**.

- To restore normal screen, press **WIDE** again.

NOTE ***(for Fader, Wide, Super LoLux, and Instant Titles) :***
When the Select Dial is turned to AUTO LOCK, the above functions will be set to the Factory settings *(Fade-standby : "OFF", Wide mode : off, Super LoLux : "MAX", Instant Title : off). Then when the Select Dial is returned to any position except AUTO LOCK, the above functions return to the settings you selected before turning it to AUTO LOCK. However, if the function is switched during AUTO LOCK, the selected mode will be set and will remain unchanged even when the Select Dial is turned to any position except AUTO LOCK.*



Super LoLux(Gain Up)

Bright, natural recordings can be taken even in areas with low or poor lighting.

1 SELECT SUPER LOLUX MODE

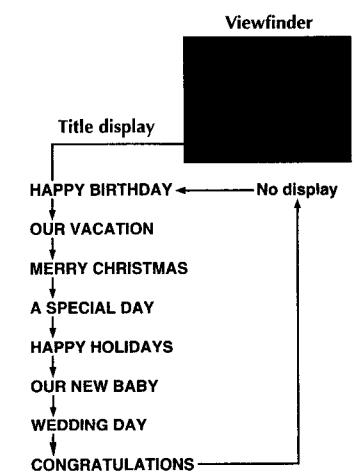
Press **SUPER LOLUX** repeatedly to cycle through the modes as shown at left. Once the desired mode appears, it is engaged.

- The mode's name is displayed for approx. 2 seconds, then disappears.

MAX : To record a subject in a dark lit environment. When it is more convenient to shoot the subject with a brighter image even if the picture becomes slightly coarse.

NORM : To record a subject in a dimly lit environment. When it is more convenient to shoot with a less coarse picture although the subject becomes slightly dark. This setting is suitable for measuring sensitivity conforming to EIA-639 (EIA* Standard for Low Light Sensitivity Measurement).
*EIA : Electronic Industries Association

OFF : Allows you to shoot dark scenes with no picture brightness adjustment.

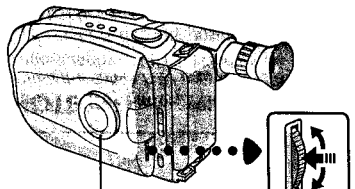


Instant Titles

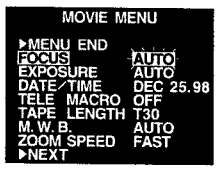
The camcorder has eight preset titles in memory. You can superimpose one of them above a previously stored title as shown in the illustration to the left.
Instant Titles can be displayed not only in English but also in French, Spanish and Portuguese. Change the setting in TITLE LANG. in the Menu screen. (☞ pg. 26, 27).

1 SELECT PRESET TITLE

Press **TITLE** repeatedly to cycle through the preset titles until the desired title is displayed.



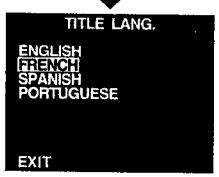
Viewfinder



Menu Screen 1

Menu Screen 2

GR-AX730 only



Setting Menu
(ex. TITLE LANG.)

GR-AX730 only

Normal Screen

Using Menu For Detailed Adjustment

This camcorder is equipped with an easy-to-use, on-screen menu system that simplifies many of the more detailed camcorder settings.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears.

2 SELECT FUNCTION

Rotate the MENU Jog Dial to place the highlight bar on the desired function.

- When the highlight bar reaches the bottom of Menu Screen 1, Menu Screen 2 is automatically displayed. When the highlight bar reaches the top of Menu Screen 2, Menu Screen 1 is automatically displayed.
- If the setting you want can't be found in the Menu Screen, place the highlight bar on "MENU END", then go to step **5**.

3 MAKE SETTING

Press the MENU Jog Dial. The setting menu of the selected function appears. The setting procedure depends on the function you select.

If you select "FOCUS", "EXPOSURE", or "DATE/ TIME" . . .

... see respective pages (FOCUS: ☞ pg. 28, 29, EXPOSURE: ☞ pg. 30, DATE/TIME: ☞ pg. 11).

If you select "JLIP ID NO." . . .

... press the MENU Jog Dial so that the number blinks, then rotate it until the desired number appears, and press it. Then rotate the MENU Jog Dial to move the highlight bar to "EXIT".

If you select any other functions . . .

... rotate the MENU Jog Dial to move the highlight bar to the desired setting.

- If you decide you want to return to the previous setting, rotate the MENU Jog Dial to move the highlight bar to "EXIT".

4 END SETTING

Press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is on "MENU END".

5 CLOSE MENU

Press the MENU Jog Dial. The normal screen reappears.

NOTES:

- *The menu function except "FOCUS" and "EXPOSURE" are not available while in the Record mode.*
- *For GR-AX430/AX230: The tally lamp is not built-in. "TALLY LED" in the Menu Screen is always set to "OFF" and cannot be set to "ON".*

FOCUS	**AUTO**	Adjusts focus automatically.
	MANU	Allows you to adjust focus manually (☞ pg. 28, 29).
EXPOSURE	**AUTO**	Adjusts exposure automatically.
	MANU	Allows you to adjust exposure manually (☞ pg. 30).
DATE/TIME	Allows you to set the current date and time (☞ pg. 11).	
TERE MACRO	**OFF**	Usually the distance to a subject where the lens is in focus depends on the zoom magnification. Unless there is a distance more than 1m (3.3 ft.) to the subject, the lens is out of focus at the maximum telephoto setting. When set to "ON", you can shoot a subject as large as possible at a distance of approx. 60 cm (2 ft.). • Depending on the zoom position, the lens may go out of focus.
	ON	
TAPE LENGTH	Allows you to set the tape length depending on the tape used (☞ pg. 12).	
M.W.B.	**AUTO**	This camcorder's Automatic Color Temperature system senses the color temperature of the ambient lighting for automatic white balance adjustment. However, precise color adjustment is not possible under the following conditions: • When an object is in various shades of the same color. • When a predominantly red or brown object is being shot outdoors. In these cases, use the camcorder's built-in preset filters for white balance adjustment (☞ pg. 31).
	☀ : FINE	
	⛅ : CLOUD	
	☀ : HALOGEN	
	M.W.B.	
ZOOM SPEED	**FAST**	Allows you to set the zooming speed (☞ pg. 18).
	SLOW	
REC TIME	This feature allows you to set the parameters for Animation and Time-Lapse recording (☞ pg. 33).	
INT. TIME	This feature allows you to set the parameters for Self-Timer (☞ pg. 32) and Time-Lapse recording (☞ pg. 33).	
TALLY LED (Tally lamp)	**ON**	The tally lamp comes on to signal the start of recording. (available only for GR-AX730)
	OFF	The tally lamp remains off at all times. (GR-AX430/AX230: always set to this mode.)
TITLE LANG.	Allows you to select the language (ENGLISH, FRENCH, SPANISH or PORTUGUESE) of Instant Titles (☞ pg. 25).	
JLIP ID NO.	This number is necessary when connecting the camcorder to a device such as a computer using the J terminal (JLIP). The numbers range from 01 to 99. Factory setting is 07.	
DEMO MODE	**OFF**	Automatic demonstration will not take place.
	ON	Demonstrates certain functions such as the Fader, Instant Titles etc. When "DEMO MODE" is set to "ON" and the Menu Screen is closed, demonstration starts. **NOTES:** • When a tape whose Erase Protection tab is in the position that allows recording is loaded in the camcorder, demonstration is not available. • By turning off the camcorder or inserting a tape whose Erase Protection tab is in the position that allows recording into it, "DEMO MODE" is set to "OFF" automatically. • During demonstration, it is not possible to operate the camcorder.

= Factory setting and when the Select Dial is set to AUTO LOCK

Focus detection zone

Focusing

Auto Focus

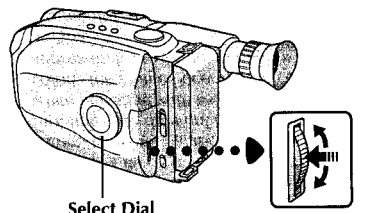
The camcorder's Full Range AF system offers continuous shooting ability from close-up to infinity. However, correct focus may not be obtainable in the situations listed below (in these cases use manual focusing):

- When two subjects overlap in the same scene.
- When illumination is low.*
- When the subject has no contrast (difference in brightness and darkness), such as a flat, one-color wall, or a clear, blue sky.*
- When a dark object is barely visible.*
- When the scene contains minute patterns or identical patterns that are regularly repeated.
- When the scene is affected by sunbeams or light reflecting off the surface of a body of water.
- When shooting a scene with a high-contrast background.

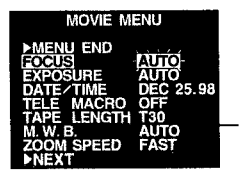
* The low-contrast warning "▲👤" appears.

NOTES:

- *If the lens is smeared or blurred, accurate focusing is not possible. Keep the lens clean, wiping with a piece of soft cloth if it gets dirty. When condensation occurs, wipe with a soft cloth or wait for it to dry naturally.*
- *When shooting a subject close to the lens, zoom-out first (☞ pg. 18). If zoomed-in in the auto focus mode, the camcorder could automatically zoom out depending on the distance between the camcorder and the subject. When Tele Macro (☞ pg. 27) is activated, the camcorder will not zoom out automatically.*



Viewfinder

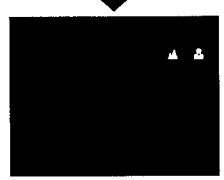


No indication during recording

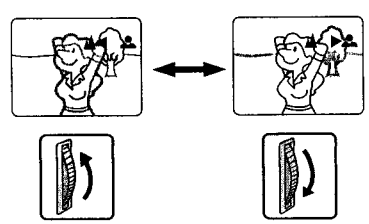
Menu Screen

No indication during recording

Focus Menu Screen



Manual Focus Screen



Manual Focus

NOTE:

You should already have made the necessary viewfinder adjustments (☞ pg. 14). If you haven't, do so before continuing.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears, and the highlight bar is placed on "FOCUS".

2 ACCESS FOCUS MENU SCREEN

Press the MENU Jog Dial.

3 ACCESS MANUAL FOCUS

Rotate the MENU Jog Dial to move the highlight bar to "MANU", then press it. "▲" and "👤" appear. The focus is locked at this point.

4 ADJUST FOCUS

To farther subject . . .

Rotate the MENU Jog Dial upward. "◀" appears and blinks.
Go to step **5**.

To nearer subject . . .

Rotate the MENU Jog Dial downward. "▶" appears and blinks.
Go to step **5**.

5 END ADJUSTMENT OF FOCUS

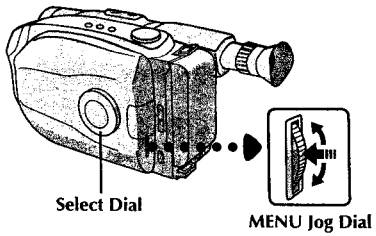
Press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is placed on "MENU END".

6 CLOSE MENU

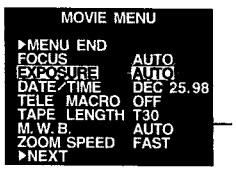
Press the MENU Jog Dial. The Menu Screen disppears and "▲👤" reappears to indicate the focus is locked.

NOTES:

- *To return to Auto Focus, select "AUTO" in step **3**.*
- *To re-adjust Manual Focus, repeat the procedure from step **1**.*
- *Be sure to focus the lens in the maximum telephoto position when you use the Manual Focus mode. If you focus in on a certain subject in the wide-angle position, sharply focused images cannot be obtained when zoomed up because the depth-of-field is reduced at longer focal lengths.*
- *When the focus level cannot be adjusted any farther or closer, "▲" or "👤" will blink.*



Viewfinder

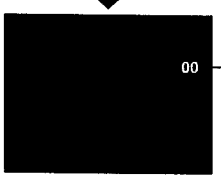


Menu Screen

No indication during recording

Exposure Menu Screen

No indication during recording



Exposure control level counter

Manual Exposure Screen

To brighten the image

To darken the image

Exposure Control

This feature automatically adjusts the iris for the best available picture quality, but you can override and make the adjustment manually.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears.

2 ACCESS EXPOSURE MENU SCREEN

Rotate the MENU Jog Dial to move the highlight bar to "EXPOSURE" and press it.

3 ACCESS MANUAL EXPOSURE

Rotate the MENU Jog Dial to move the highlight bar to "MANU", then press it. "00" (exposure control level counter) appears.

4 ADJUST EXPOSURE

To brighten the image . . .

Rotate the MENU Jog Dial upward. The exposure control level counter increases (maximum +06). Go to step **5**.

To darken the image . . .

Rotate the MENU Jog Dial downward. The exposure control level counter decreases (maximum –06). Go to step **5**.

5 END ADJUSTMENT OF EXPOSURE

Press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is placed on "MENU END".

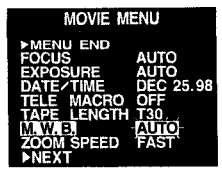
6 CLOSE MENU

Press the MENU Jog Dial. The Menu Screen disappears and the exposure control level counter reappears to indicate the exposure is adjusted.

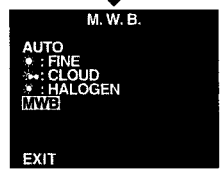
NOTES:

- *To return to the factory setting, select "AUTO" in step **3**.*
- *To re-adjust exposure, repeat the procedure from step **1**.*

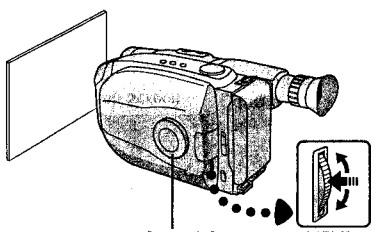
Viewfinder



Menu Screen



M.W.B. Menu Screen



NOTES:

- *To switch to automatic white balance adjustment, set the M.W.B. in the Menu Screen to "AUTO", or turn the Select Dial to "AUTO LOCK".*
- *Re-adjust the White Balance when the lighting has changed, when the camcorder has been turned off and on again, or when the Select Dial's position has been changed.*
- *When adjusted by putting colored paper in front of the subject in step **1** of "MWB", this unit makes its color temperature standard for automatic white balance. So you can enjoy shooting with different colors. For example, when adjusting with red, blue or yellow colors, the image becomes the color which approximates to green, orange or purple respectively.*
- *It is helpful to connect your camcorder to a color monitor when adjusting the white balance (☞ pg. 35).*

Manual White Balance Adjustment (M.W.B.)

The white balance is usually adjusted automatically. However, the more advanced camcorder operator would prefer to control this function manually and achieve a more professional color/tint reproduction.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial. The Menu Screen appears.

2 ACCESS WHITE BALANCE MENU SCREEN

Rotate the MENU Jog Dial to move the highlight bar to "M.W.B.", then press it.

3 SELECT WHITE BALANCE

Rotate the MENU Jog Dial to move the highlight bar to the required white balance.

"**AUTO**"	Automatic adjustment
"☀ : **FINE**"	Outdoors on sunny day
"☁ : **CLOUD**"	Outdoors on cloudy day
"☀ : **HALOGEN**"	Light source is halogen or tungsten lamp
"**MWB**"	When using a personal White Balance Setting stored in memory (see below.)

4 CLOSE MENU

Press the MENU Jog Dial. The Menu Screen reappears. Then press the MENU Jog Dial again to exit the Menu Screen.

MWB

MWB sets the color temperature for the subject's light source so you can shoot with natural colors that are unaffected by surroundings, even when there are multiple subjects with different color temperatures.

1 PREPARE WHITE OBJECT

Point the camcorder at a white, flat object such as a sheet of white paper.

2 SELECT MWB

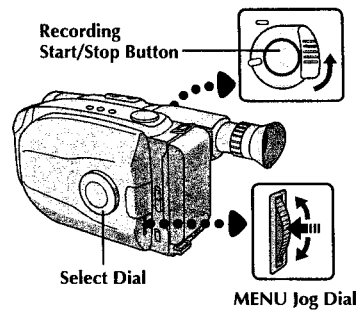
Follow step **1** through **3** of the above, select "MWB".

3 MEMORIZE WHITE BALANCE

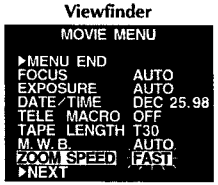
Press the MENU Jog Dial until "MWB" begins blinking. "MWB" blinks while the white balance is being stored in memory, then the Menu Screen reappears when memorization is complete.

4 CLOSE MENU

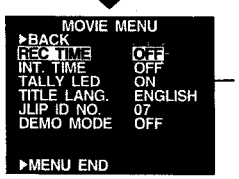
Press the MENU Jog Dial.



Viewfinder

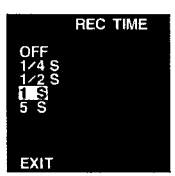


Menu Screen



GR-AX730 only

INT. TIME Menu



REC TIME Menu

INT. TIME Indicator

INT. TIME and REC TIME indications on the normal screen

REC TIME Indicator

Self-Timer

You can set the delay between pressing the Recording Start/Stop Button and the actual start of recording. If you secure the camcorder, you (or whomever is operating the camcorder) can enter the scene before recording starts.

NOTE:

Make sure the camcorder is in the Record-Standby mode before performing the following steps.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press the MENU Jog Dial.

2 ACCESS INT. TIME MENU SCREEN

Rotate the MENU Jog Dial to move the highlight bar to "INT. TIME", then press the MENU Jog Dial.

3 SET INTERVAL TIME

Rotate the MENU Jog Dial to move the highlight bar to the desired time, then press the MENU Jog Dial. The Menu Screen reappears and the highlight bar is placed on "MENU END".

4 CLOSE MENU

Press the MENU Jog Dial.

5 START DELAYED RECORDING

Press the Recording Start/Stop Button. When the selected time has elapsed, recording begins automatically.

To Cancel Self-Timer . . .

.... Before the recording begins, press the Recording Start/Stop Button to display "≡PAUSE≡", then set "INT. TIME" in the Menu Screen to "OFF".

Animation

Give stationary scenes or objects an illusion of movement. This function allows you to shoot a series of pictures, each slightly different, of the same object for a brief period of time.

NOTE:

Make sure the camcorder is in the Record-Standby mode and the recording mode is set to "SP" before performing the following steps.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press MENU Jog Dial.

2 SET RECORDING TIME

Rotate the MENU Jog Dial to move the highlight bar to "REC TIME", then press the MENU Jog Dial. The REC TIME Menu appears. Rotate the MENU Jog Dial to move the highlight bar to the desired time, then press the MENU Jog Dial. The Menu Screen reappears. Press the MENU Jog Dial again to exit the Menu Screen.

3 START RECORDING

Press the Recording Start/Stop Button after focusing on the subject. The recording stops automatically after the selected period of time.

4 ASSEMBLE SERIES OF PICTURES

Repeat step **3** for the desired number of pictures.

5 RELEASE ANIMATION MODE

Set "REC TIME" in the Menu screen to "OFF".

NOTES:

- *For best results, make sure the camcorder is secured when shooting in Animation or Time-Lapse mode.*
- *Fade-in/out cannot be performed during Animation or Time-Lapse shooting.*
- *Before performing other operations following Animation or Time-Lapse recording, make sure the Animation or Time-Lapse mode is deactivated.*
- *Self-Timer, Animation and Time-Lapse are canceled when the power is shut off or when the cassette is ejected.*

Time-Lapse

You can record sequentially at preset time spans. Leaving the camcorder aimed at a specific subject, you can record subtle changes over an extended period of time.

NOTE:

Make sure the camcorder is in the Record-Standby mode and the recording mode is set to "SP" before performing the following steps.

1 ACCESS MENU SCREEN

Turn the Select Dial to any position except AUTO LOCK, then press MENU Jog Dial.

2 SET INTERVAL BETWEEN RECORDINGS

Rotate the MENU Jog Dial to move the highlight bar to "INT. TIME", then press the MENU Jog Dial. The INT. TIME Menu appears. Rotate the MENU Jog Dial to move the highlight bar to the desired time, then press the MENU Jog Dial. The Menu Screen reappears.

3 SET RECORDING TIME

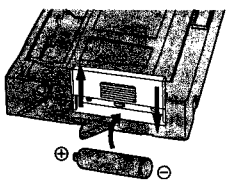
Rotate the MENU Jog Dial to move the highlight bar to "REC TIME", then press the MENU Jog Dial. The REC TIME Menu appears. Rotate the MENU Jog Dial to move the highlight bar to the desired time, then press the MENU Jog Dial. The Menu Screen reappears. Press the MENU Jog Dial again to exit the Menu Screen.

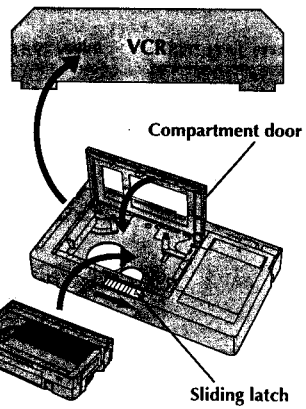
4 START TIME-LAPSE RECORDING

Press the Recording Start/Stop Button. Recording and intervals alternate automatically.

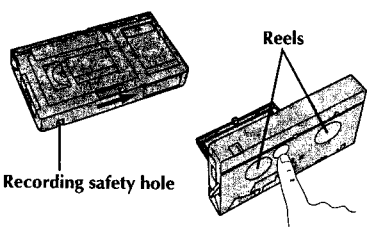
5 RELEASE TIME-LAPSE MODE

To release when "≡PAUSE≡" is displayed, set "REC TIME" and "INT. TIME" in the Menu Screen to "OFF". To release when "≡PAUSE≡" and "REC ▶▶▶" are not displayed, press the Recording Start/Stop Button to display "≡PAUSE≡", then set "REC TIME" and "INT. TIME" in the Menu Screen to "OFF".





Compact video cassette



Cassette Adapter (VHS Playpak)

Use this to play back a VHS-C video cassette recorded with this camcorder. It is fully compatible with any VHS video cassette recorder. The C-P7U adapter is battery powered and automatically performs tape loading and unloading.

1 INSERT BATTERY

Slide the battery cover up to remove it, and install one "AA(R6)" size battery as shown in the illustration at left. Then reattach the cover.

2 INSERT CASSETTE IN ADAPTER

Slide the latch to open the adapter compartment door, then insert the cassette and close the compartment door.

3 PLAY BACK ON CONNECTED VCR

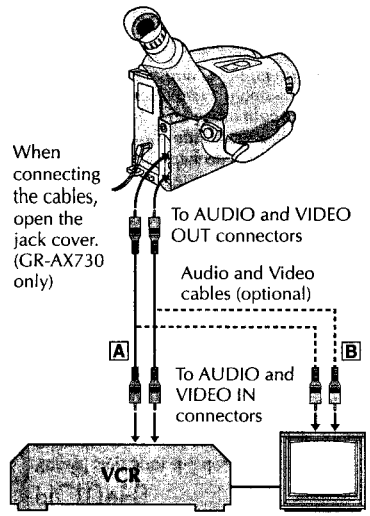
Load the cassette adapter into the VCR and play the tape back as you would any other.

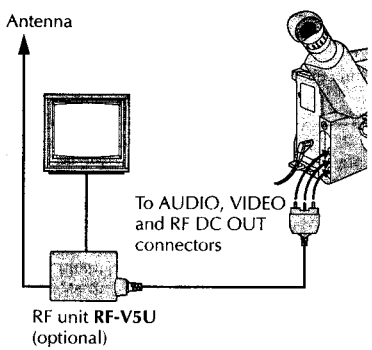
4 REMOVE CASSETTE FROM ADAPTER

Slide the latch and the compartment door opens automatically. This may take around 10 seconds. Do not attempt to force the adapter open. Then insert your finger in the hole on the underside of the adapter as shown in the illustration at left, push up and remove the cassette.

NOTES:

- *For GR-AX730: "AA(R6)" size battery is supplied with the provided Cassette Adapter.*
  For GR-AX430/230: "AA(R6)" size battery is NOT supplied with the provided Cassette Adapter. Separate purchase necessary.
- *During tape loading and unloading, do not touch the reels for safety and tape protection.*
- *During special-effect playback (slow motion, still frame, etc.), the picture may vibrate or noise bars may appear on the screen.*
- *To record on a VCR using a compact cassette and the adapter, cover the adapter's recording safety hole with adhesive tape.*


When connecting the cables, open the jack cover. (GR-AX730 only)
To AUDIO and VIDEO OUT connectors
Audio and Video cables (optional)
A
B
To AUDIO and VIDEO IN connectors
VCR



NOTES:

- *It is recommended to use the AC Power Adapter/Charger as the power supply instead of the battery pack.*
- *To monitor the picture and sound from the camcorder without inserting a tape, set the camcorder's Power Switch to "CAMERA", then set your TV to the appropriate input mode.*
- *If you have a TV or speakers that are not specially shielded, do not place the speakers adjacent to the TV as interference will occur in the camcorder playback picture.*

There are three basic types of connections. When making the connections, refer also to your VCR and TV instruction manuals.

Connection To A VCR A (Editing, Dubbing and Playback)

NOTE:

Use the optional Audio and Video cables.

1 CONNECT CAMCORDER TO VCR

As shown in the illustration at left, connect the Audio and Video cables between the AUDIO and VIDEO OUT connectors on the camcorder and those on the VCR.

2 SUPPLY POWER

Turn on the camcorder, the VCR and the TV.

3 SELECT MODE

Set the VCR to its AUX input mode, and set the TV to its VIDEO mode.

Connection To A TV With A/V Input Connectors B (Playback ONLY)

NOTE:

Use the optional Audio and Video cables.

1 CONNECT CAMCORDER TO TV

As shown in the illustration at left, connect the Audio and Video cables between the AUDIO and VIDEO OUT connectors on the camcorder and those on the TV.

2 SELECT MODE

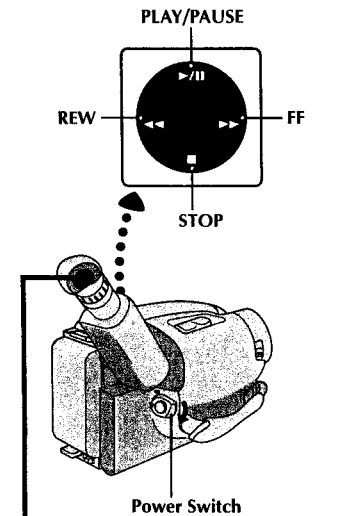
Set the TV to its VIDEO or AV mode (as specified in its instructions).

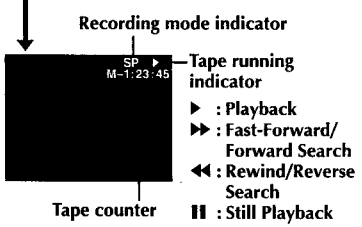
Connection To A TV With NO A/V Input Connectors (Playback ONLY)

NOTE:

Use the optional RF-V5U RF unit.

* Refer to the RF-V5U instruction manual for connection procedure.





1 LOAD A CASSETTE

Slide **EJECT** to open the cassette holder, then insert the cassette with the label facing out. Press **PUSH** to ensure the holder is closed and locked.

2 SELECT MODE

Set the Power Switch to "PLAY". The power indicator lights.

3 PLAY BACK

Press **PLAY/PAUSE**. The playback picture appears.

4 STOP PLAYBACK

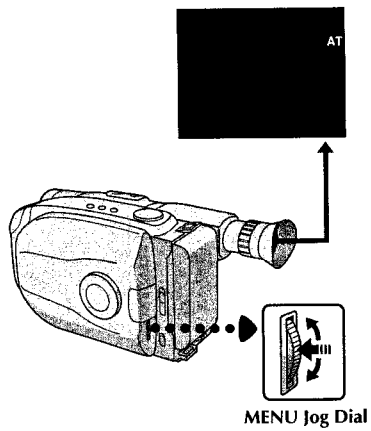
Press **STOP**.

Rewind or Fast-forward the tape

Press **REW** to rewind, or **FF** to fast-forward the tape during Stop mode.

NOTE:

The camcorder shuts off automatically after about 5 minutes in Stop mode. To turn on again, set the Power Switch to "POWER OFF", then to "PLAY".



Tracking

This function can be used to eliminate noise bars that appear on-screen during playback. Initial setting is Auto Tracking. Manual Tracking is also available.

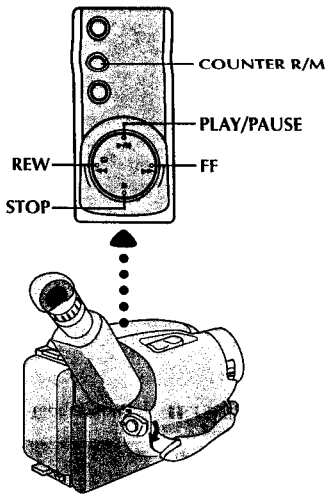
1 ACTIVATE MANUAL TRACKING

Press the MENU Jog Dial during playback mode. Keep rotating it until noise bars disappear.

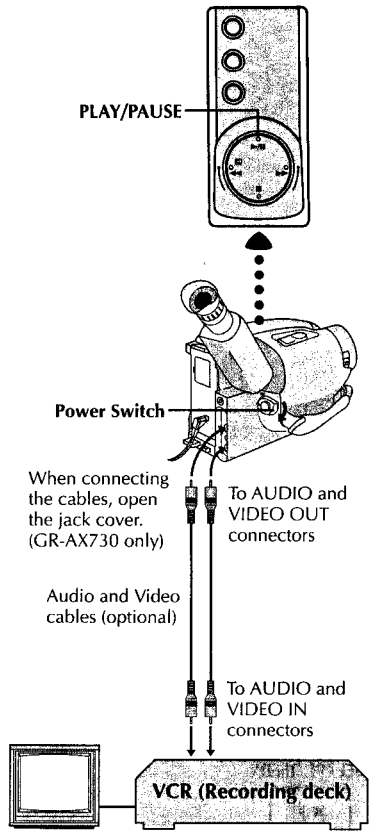
- To return to Auto Tracking, press the MENU Jog Dial. "AT" blinks. When Auto Tracking finishes, the indication disappears.

NOTES:

- *When noise bars appear during playback, the camcorder enters the Auto Tracking mode and "AT" is displayed.*
- *Manual Tracking may not work with tapes recorded on other VCRs or camcorders.*



FEATURE:	**Still Playback**
PURPOSE:	To pause during playback.
OPERATION:	1) Press **PLAY/PAUSE** during playback. 2) To resume normal playback, press **PLAY/PAUSE** again.
NOTE:	*Noise bars appear and pictures may become monochrome during Still Playback. This is normal.*
FEATURE:	**Shuttle Search**
PURPOSE:	To allow high-speed search in either direction.
OPERATION:	***Forward Search*** 1) Press **FF** during playback. ***Reverse Search*** 1) Press **REW** during playback.
NOTE:	*Noise bars appear and pictures may become monochrome or darken in Shuttle Search. This is normal.*
FEATURE:	**Counter Memory Function**
PURPOSE:	To make it easier to locate a specific tape segment.
OPERATION:	1) Press **COUNTER R/M** and hold for more than 1 second. The counter resets to "0:00:00". 2) Press **COUNTER R/M** for less than 1 second. "M" appears. 3) After recording or playback, press **STOP**, then **REW**. The tape automatically stops at or close to 0:00:00. 4) Press **PLAY/PAUSE** to start playback.
NOTES:	• *The counter memory functions in the Fast-Forward and Rewind modes.* • *To disable Counter Memory Function, press **COUNTER R/M** for less than 1 second so the "M" disappears.*


PLAY/PAUSE
Power Switch
When connecting the cables, open the jack cover. (GR-AX730 only)
To AUDIO and VIDEO OUT connectors
Audio and Video cables (optional)
To AUDIO and VIDEO IN connectors
VCR (Recording deck)

Tape Dubbing

1 CONNECT EQUIPMENT
Following the illustration at left, connect the camcorder and the VCR.

2 PREPARE FOR DUBBING
Set the camcorder's Power Switch to "PLAY", turn on the VCR's power, and insert the appropriate cassettes in the camcorder and the VCR.

3 SELECT VCR MODE
Engage the VCR's AUX and Record-Pause modes.

4 FIND EDIT-IN POINT
Engage the camcorder's Play mode to find a spot just before the edit-in point. Once it's reached, press **PAUSE** on the camcorder.

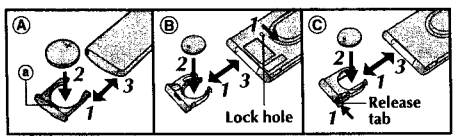
5 START EDITING
Press **PLAY** on the camcorder and engage the VCR's Record mode.

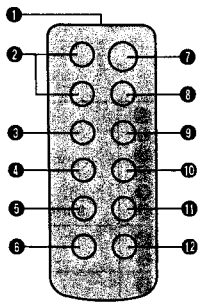
6 STOP EDITING TEMPORARILY
Engage the VCR's Record-Pause mode and press **PAUSE** on the camcorder.

7 EDIT MORE SEGMENTS
Repeat steps **4** through **6** for additional editing, then stop the VCR and camcorder when finished.

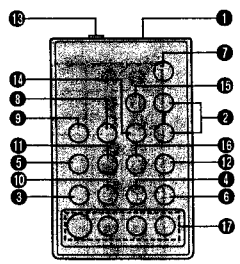
USING REMOTE CONTROL UNIT (GR-AX730 only)

The Full-Function Remote Control Unit can operate this camcorder from a distance as well as the basic operations (PLAY, STOP, PAUSE, FF, and REW) of your VCR. This remote control unit makes additional recording functions possible.





RM-V705U (provided with GR-AX730 only)



RM-V700U (optional)

INSTALLING THE BATTERY

1 PULL OUT BATTERY HOLDER

Type Ⓐ : Pull out by inserting a pointed instrument into slot ⓐ.
Type Ⓑ : Pull out while sliding the lock hole.
Type Ⓒ : Pinch the release tab and pull out.

2 INSERT BATTERY

Making sure the plus (+) side is up, insert the lithium battery (CR2025)* into the battery holder.

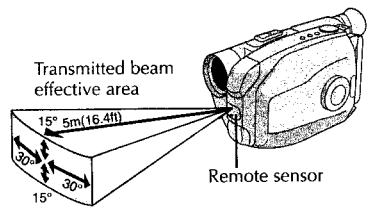
3 REPLACE BATTERY HOLDER

Insert the battery holder into the remote control unit, and push the holder until it clicks into place.

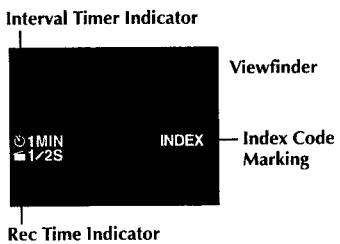
* Read the caution concerning lithium batteries (☞ pg. 2).

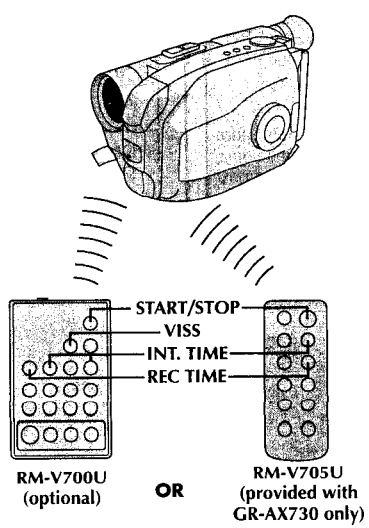
BUTTONS	FUNCTIONS	
	With the camcorder's power switch set to "CAMERA".	**With the camcorder's power switch set to "PLAY".**
❶ **Infrared beam transmitting window**	Transmits the beam signal.	
❷ **ZOOM (T/W) Buttons**	Zoom in/out (☞ pg. 18)	—
❸ **PLAY Button**	—	Playback start (☞ pg. 36)
❹ **STOP Button**	—	Stop (☞ pg. 36)
❺ **REW Button**	Retake (rewind)/Quick Review (☞ pg. 19)	Rew/Rew Shuttle Search (☞ pg. 36)
❻ **INSERT Button**	—	Insert Editing (☞ pg. 46)
❼ **START/STOP Button**	Functions same as the Recording Start/Stop button on the camcorder.	
❽ **INT. TIME Button**	Self-Timer/Time-Lapse (☞ pg. 41)	—
❾ **REC TIME Button**	Animation/Time-Lapse (☞ pg. 41)	—
❿ **PAUSE Button**	—	Pause (☞ pg. 38)
⓫ **FF Button**	Retake (forward) (☞ pg. 19)	FF/FF Shuttle Search (☞ pg. 36)
⓬ **A.DUB Button**	—	Audio dubbing (☞ pg. 47)
⓭ **PAUSE IN Connector**	—	☞ pg. 43
⓮ *MIX SET Button*	—	☞ pg. 43
⓯ **VISS Button**	Index Code marking (☞ pg. 41)	—
⓰ *VCR CTL Button*	—	☞ pg. 42
⓱ **R.A.EDIT Buttons**	—	☞ pg. 44

⓭ — ⓱ : RM-V700U only.



When using the remote control, be sure to point it at the remote sensor. The above illustration shows the approximate transmitted beam effective area for indoor use.
The transmitted beam may not be effective or may cause incorrect operation outdoors or when the remote sensor is directly exposed to sunlight or powerful lighting.

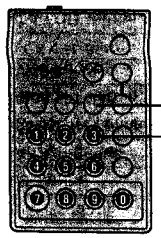




RM-V700U (optional) **OR** RM-V705U (provided with GR-AX730 only)

FEATURE:	**Self-Timer, Animation and Time-Lapse**
PURPOSE:	The remote control lets you set/release Interval Timer and Rec Time functions as well as the Menu Screen.
OPERATION:	***Self-Timer*** **1) Set** Instead of performing steps **1** through **4** on pg. 32 ("Self-Timer"), press **INT. TIME** on the remote control. Each time **INT. TIME** is pressed, the Interval Timer indicator appears, changing in the following order: 15S, 30S, 1MIN, 5MIN and No indication (off). **2) Release** Instead of setting "INT. TIME" to "OFF" in the Menu, press **INT. TIME** on the remote control until the Interval Timer indicator disappears. ***Animation*** **1) Set** Instead of performing steps **1** and **2** on pg. 33 ("Animation"), press **REC TIME** on the remote control. Each time **REC TIME** is pressed, the Rec Time indicator appears, changing in the following order: 1/4S, 1/2S, 1S, 5S and No indication (off). **2) Release** Instead of using the Menu in step **5** on pg. 33, press **REC TIME** on the remote control until the Rec Time indicator disappears. ***Time-Lapse*** **1) Set** Instead of performing steps **1** through **3** on pg. 33 ("Time-Lapse"), press **INT. TIME** and **REC TIME** on the remote control. Each time **INT. TIME** is pressed, the Interval Timer indicator appears, changing in the following order: 15S, 30S, 1MIN, 5MIN and No indication (off). Each time **REC TIME** is pressed, the Rec Time indicator appears, changing in the following order: 1/4S, 1/2S, 1S, 5S and No indication (off). **2) Release** Instead of using the Menu in step **5** on pg. 33, press **INT. TIME** and **REC TIME** on the remote control until the indicators disappear.
NOTE:	*Also refer to pgs. 32 and 33.*

FEATURE:	**Index Code Marking (RM-V700U only)**
PURPOSE:	To give you automatic access to any selected point on a recording.
OPERATION:	**1)** Press **VISS** once to place the index code. "INDEX" blinks during marking.
NOTE:	*If **VISS** is pressed during Record-Standby mode, the mark is placed where **START/STOP** is pressed.*



RM-V700U
(optional)

Random Assemble Editing [R.A.Edit]

Create edited videos easily using your camcorder as the source player. You can select up to 8 "cuts" for automatic editing, in any order you like. R.A.Edit is more easily performed when the optional RM-V700U MBR (Multi-Brand Remote, ☞ pg. 40) is set to operate with your brand of VCR (see VCR CODE LIST), but can also be performed by operating the VCR manually.
Before operation, make sure the lithium battery is installed in the remote control RM-V700U (☞ pg. 40).

VCR CODE LIST

VCR BRAND NAME	BUTTONS (A) (B)
GE	1 1 9 2 9 0 9 4
HITACHI	6 6 6 3
JVC A	9 1
B	9 5
C	9 3
MAGNAVOX	9 5 1 1 7 1 7 6
MITSUBISHI	6 7 6 8
NEC	3 7 3 8
PHILIPS	1 9 9 5 1 1 9 4 9 1 9 6
PHILIPS	1 2 3 3
PANASONIC	1 3 1 7 1 1 9 4 1 8
RCA	9 2 9 4 6 6 6 3 9 0
SANYO	3 6 3 5
SHARP	1 5 1 0
SONY	6 5 6 0 3 9 3 1
TOSHIBA	6 9 6 1
ZENITH	1 6

SET REMOTE/VCR CODE

1 SET REMOTE TO OPERATE VCR

Turn off the power to the VCR and point the remote toward the VCR's infrared sensor. Then, referring to the VCR CODE LIST on the left, press and hold **MBR SET**, and press button (A) and then (B).

- The code is automatically set once you release the **MBR SET** button, and the VCR's power comes on.

2 OPERATE VCR

Make sure the VCR's power is on. Then, while holding **VCR CTL**, press the button on the remote for the desired function. The functions the remote can control are PLAY, STOP, PAUSE, FF, REW and VCR REC STBY (you don't need to press **VCR CTL** for this one).

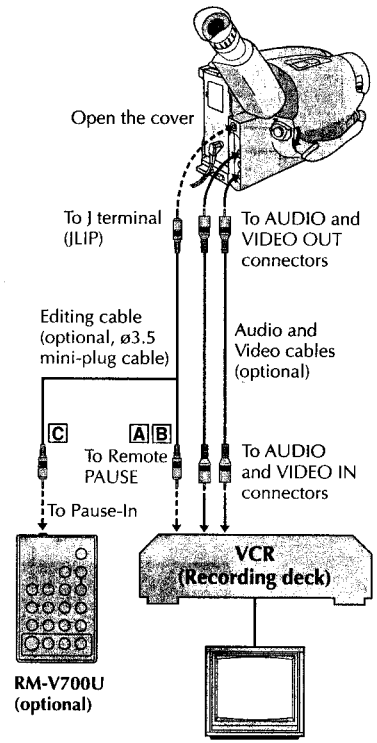
You're now ready to try Random Assemble Editing.

IMPORTANT

Although the MBR is compatible with JVC VCRs and those of many other makers, it may not work with yours or may offer limited functions.

NOTES:

- *If the VCR's power doesn't come on in step **1**, try another code from the VCR CODE LIST.*
- *Some brands of VCR don't come on automatically. In this case, turn the power on manually and try step **2**.*
- *If the RM-V700U is not able to control the VCR, use the controls on the VCR.*



RM-V700U
(optional)

MAKE CONNECTIONS

1 CONNECT TO . . .

A JVC VCR EQUIPPED WITH REMOTE PAUSE TERMINAL
Connect the editing cable to the Remote PAUSE terminal.

B JVC VCR NOT EQUIPPED WITH REMOTE PAUSE TERMINAL BUT EQUIPPED WITH R.A. EDIT CONNECTOR
Connect the editing cable to the R.A.EDIT connector.

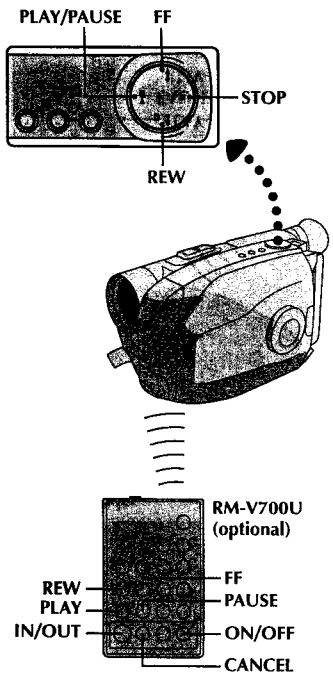
C VCR OTHER THAN TYPE A OR B
Connect the editing cable to the RM-V700U's Pause-In jack.

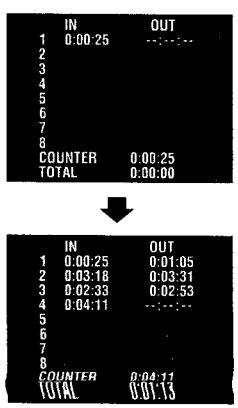
2 PREPARE CAMCORDER

Insert a recorded tape and set the Power Switch to "PLAY".

3 PREPARE VCR

Turn the power on, insert a recordable tape and engage the AUX mode (refer to VCR's instructions).





SELECT SCENES

1 ACCESS R.A. EDIT COUNTER DISPLAY

Press **PLAY/PAUSE**, then press **ON/OFF** and the counter display appears in the viewfinder and the screen of the connected TV.

2 REGISTER BEGINNING OF SCENE

Press **REW** or **FF** to locate the beginning of a scene you want, then press **IN/OUT** to register that point. The data appears under "IN" on the display.

3 REGISTER END OF SCENE

Press **REW** or **FF** to locate the end of the scene and press **IN/OUT** to register it. The data appears under "OUT" on the display. The total time of the registered scene(s) is displayed at the bottom of the screen.

4 REGISTER ADDITIONAL SCENES

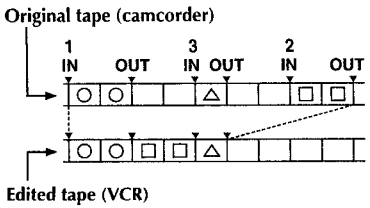
Repeat steps **2** and **3** for each additional scene (as many as 8).

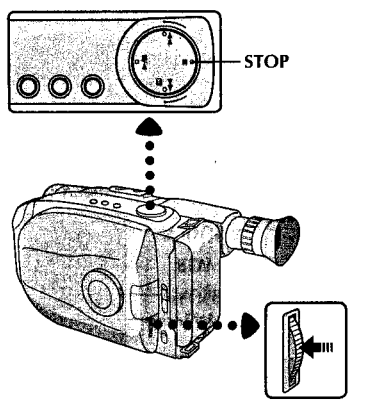
5 MAKE CORRECTIONS

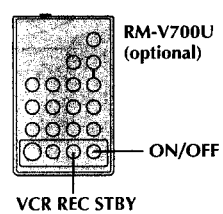
Press **CANCEL** during steps **2** and **3** to erase the most recently registered point.

NOTES:

- *There must be at least one second between an in-point and its corresponding out-point.*
- *To ensure correct operation, there should be at least 15 seconds between an out-point and the next in-point.*
- *Blank portions of tape cannot be registered as in-points or out-points.*
- *If it takes more than 5 minutes to search for an in-point, the VCR's Record-Pause mode is cancelled and editing doesn't take place.*
- *Pressing **ON/OFF** clears all in- and out-points from memory.*
- *Leave a small margin for error around each in-point to ensure the scene is recorded in its entirety.*







AUTOMATIC EDITING TO VCR

1 ENGAGE VCR'S RECORD-PAUSE MODE

Point the remote control toward the VCR's infrared sensor and press **VCR REC STBY**, or manually engage the VCR's Record-Pause mode.

2 BEGIN AUTOMATIC EDITING

Press the MENU Jog Dial on the camcorder, and the previously selected scenes are copied to the VCR in the specified order.
While editing, the R.A. Edit counter of the scene which is beging copied is shown with a blinking highlight.

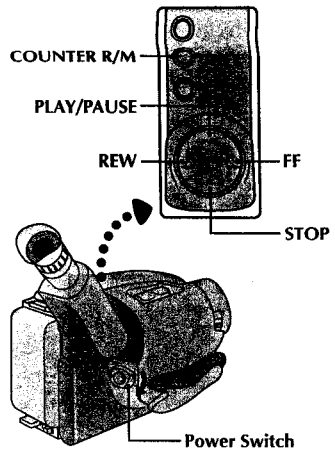
3 END AUTOMATIC EDITING

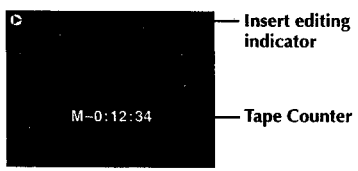
When all selected scenes have been copied, the camcorder and VCR enter the still or pause mode. Press **STOP** on both units. To make the R.A. Edit counter display disappear, press **ON/OFF**.

- When finished editing, be sure to disconnect the editing cable and the audio/video cable.

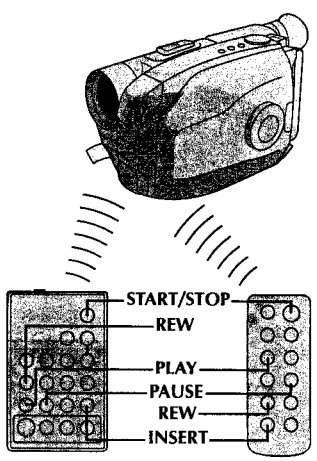
NOTES:

- *If you performed step **1** [C] on page 43 ("MAKE CONNECTIONS"), keep the remote control pointed at the VCR during editing.*
- *The on-screen display only appears while the camcorder searches for each scene.*
- *There may be noise at in- or out-points on the edited tape with certain VCRs.*





Viewfinder



RM-V700U (optional) OR RM-V705U (provided with GR-AX730 only)

Insert Editing

You can record a new scene into a previously recorded tape, replacing a section of the original recording with minimal picture distortion at the in- and out-points. The original audio remains unchanged.

NOTE:

Use the RM-V705U or RM-V700U remote control unit to perform this procedure.

1 SELECT MODE

Set the Power Switch to "PLAY".

2 FIND EDIT-OUT POINT

Play back the tape, locate the point and press **PAUSE** on the camcorder or the remote control.

3 RESET COUNTER

Press and hold **COUNTER R/M** for more than 1 second to reset the tape counter, then press again for less than 1 second and make sure "M" appears.

4 FIND EDIT-IN POINT

Press **REW** to go a little beyond the beginning of the scene you want to replace, press **PLAY** to view the recorded tape, and press **PAUSE** exactly at the point where the new scene should start.

5 ENGAGE INSERT EDITING MODE

Press and hold **INSERT**, and without releasing **INSERT**, press and release **PAUSE**. The Insert mode is engaged. When the scene the camcorder is aimed at appears on the screen, go to the next step.

6 BEGIN INSERT EDITING

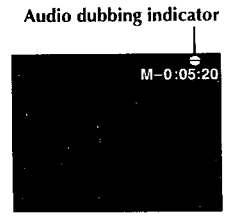
Press **START/STOP**. When the counter reaches "0:00:00", editing stops automatically and the camcorder enters the Insert-Pause mode.

7 END INSERT EDITING

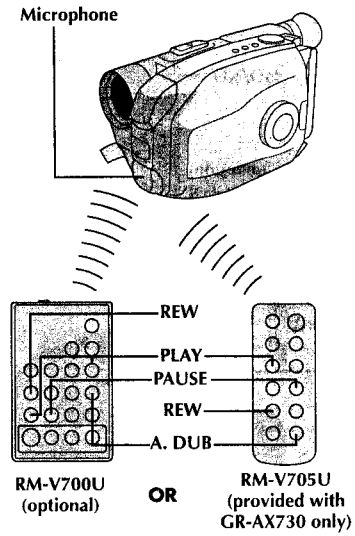
Press **STOP**.

NOTES:

- *After step 5, Retake (☞ pg. 19) can be performed.*
- *The tape may stop slightly before or after the designated end point, and noise bars may appear. Neither indicates a defect in the unit.*
- *Only video signal is recorded in the Insert Editing mode.*



Viewfinder



RM-V700U (optional) OR RM-V705U (provided with GR-AX730 only)

Audio Dubbing

You can record a new soundtrack on a prerecorded tape (normal audio only).

Perform steps **1**, **2** and **3** of the Insert Editing procedure (☞ pg. 46) before continuing.

- The sound comes from the built-in microphone.

1 FIND EDIT-IN POINT

Press **REW** to go a little beyond the beginning of the scene onto which you want to dub new audio, press **PLAY** to view the recorded tape, then press **PAUSE** at exactly the point where dubbing should start.

2 ENGAGE AUDIO DUB-STANDBY MODE

Press and hold **A. DUB**, and without releasing **A. DUB**, press and release **PAUSE**.

3 BEGIN AUDIO DUBBING

Press **PLAY**. When the counter reaches "0:00:00", Audio Dubbing stops automatically and the camcorder enters the Audio Dub-Standby mode.

4 END AUDIO DUBBING

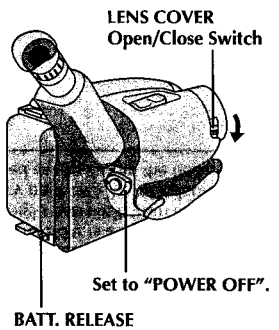
Press **STOP**.

NOTES:

- *Do not press **FF** or **REW** during Audio Dub-Standby, or the edit points will not be accurate.*
- *If the microphone is too close to the TV, or if the TV's volume is too high, whistling or howling may occur.*

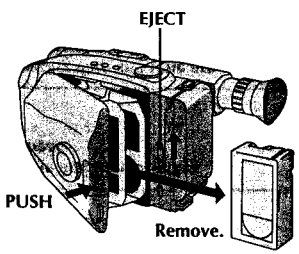
NOTES (for Insert Editing and Audio Dubbing):

- *Insert Editing and audio Dubbing may not work correctly if the tape contains blank segments, or if the recording speed was changed during the original recording.*
- *To edit/dub onto a tape, make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.*
- *Do not press **STOP** during Insert Editing or Audio Dubbing, or the edit points will not be accurate.*
- *During Insert Editing and Audio Dubbing, when Insert-Pause or Audio Dub-Standby is engaged, the counter may go slightly past "0:00:00". Recording, however, stops at exactly 0:00:00.*



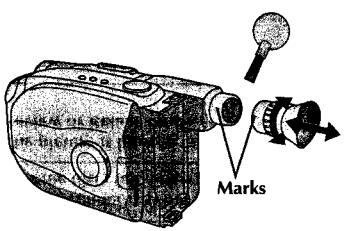
After Use

1. Set the Power Switch to "POWER OFF" to turn off the camcorder.
2. Slide **EJECT** to open the cassette holder, then remove the cassette.
3. Close and lock the cassette holder by pressing **PUSH**.
4. Slide **BATT. RELEASE** to remove the battery pack.
5. Slide the **LENS COVER** open/close switch to close the lens cover.



Cleaning The Camcorder

1. CLEAN EXTERIOR
   Wipe gently with a soft cloth.
2. CLEAN LENS
   Blow it with a blower brush, then wipe gently with lens cleaning paper.
3. CLEAN VIEWFINDER
   ① Turn the eyepiece counterclockwise and pull it out.
   ② Remove dust using a blower brush.
   ③ Align the marks, re-attach the eyepiece and turn it clockwise.



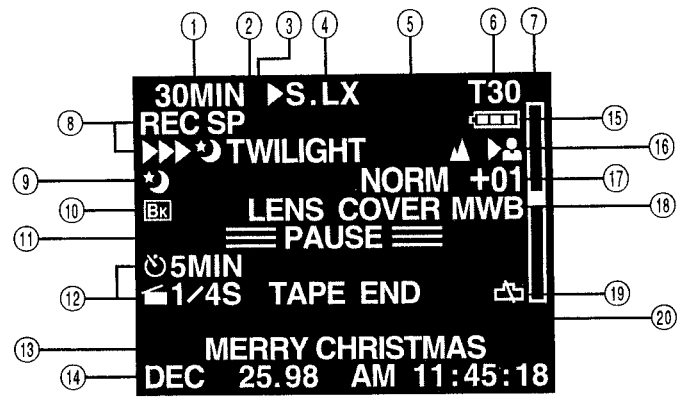
NOTES:

- *Avoid using strong cleaning agents such as benzine or alcohol.*
- *Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.*
- *Mold may form if the lens is left dirty.*

SYMPTOM	POSSIBLE CAUSE(S)
POWER	
No power is supplied.	• The battery pack has not been attached correctly (☞ pg. 8). • The battery pack is not charged (☞ pg. 8). • The power supply has not been correctly connected (☞ pg. 9).
The power suddenly goes off and doesn't come back on by itself.	• The battery pack has completely discharged. • Remove the cassette and disconnect the power source, then after a few minutes, try turning the power back on. If it still doesn't come on, consult your nearest JVC dealer.
RECORDING	
Recording cannot be performed.	• Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.
Recording does not start.	• The camcorder Power switch has not been set to "CAMERA" (☞ pg. 16).
PLAYBACK	
The tape is running, but there's no playback picture.	• The TV has not been set to its VIDEO mode or channel. • If A/V connection is used, the TV's VIDEO/TV switch has not been set to VIDEO. • The RF unit has not been set to the correct channel.
Playback picture is blurred or interrupted.	• The video heads are dirty or worn out. Consult your nearest JVC dealer for head cleaning or replacement.
The counter indication is blurred during Still playback.	• This is normal.
TAPE TRANSPORT	
The tape stops during fast-forward or rewind.	• The Counter Memory Function has been activated (☞ pg. 38).
Rewinding or fast-forwarding cannot be performed.	• The tape is already fully wound on one reel or the other.

SYMPTOM	POSSIBLE CAUSE(S)
OTHER	
The tape won't eject.	• The battery pack is running low.
Some functions are not available.	• The Select Dial is set to "AUTO LOCK".
Vertical white lines appear when shooting a very bright object.	• This sometimes occurs when the contrast between the background and the object is great. It is not a defect of the camcorder.
Bright, crystal-shaped spots appear in the viewfinder.	• Sunlight is directly entering the lens. This is not a defect of the camcorder.
The viewfinder and the lens have become dirty (ex. fingerprints).	• Wipe them gently with soft cloth.
The picture is blurred in the Quick Review or Retake mode.	• This is normal while recording in the EP mode. Some noise may be present while recording in the SP mode (☞ pg. 12).
An error number (i.e. E03) appears.	• Turn the camcorder's power off, then disconnect the power source. After a few minutes, try turning the power on again. If the error number still appears in the viewfinder, consult your nearest JVC dealer.
The image is out of focus.	• The diopter needs to be adjusted (☞ pg. 14). • The scene being shot is adversely affecting the operation of Auto Focus (☞ pg. 28).
The date and time displays disappear.	• If you remove the power source from the camcorder while the power is on, all settings and selections are erased. Make sure to turn the camcorder's power off before disconnecting the power source.
The wrong date and time are displayed/recorded.	• If you have not performed Date/Time Setting (☞ pg. 11), the date and time are not displayed/recorded correctly. Be sure that Date/Time setting is carried out.
Even though the Lens Cover is open, the Lens Cover Warning indicator blinks.	• The Lens Cover Warning indicator may blink when the camcorder is used in dark areas, regardless of the position of the Lens Cover.

The camcorder is a microcomputer-controlled device. External noise and interference (from a TV, a radio, etc.) might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC Power Adapter/Battery Charger, etc.) and clock battery; and then re-connect it and proceed as usual from the beginning.



Viewfinder Indications

① Cassette Warning/
Tape Remaining Time ..... ☞ pg. 17
When no cassette is inserted: the cassette (📼) warning blinks.
When Erase Protection tab is not in the position that allows recording: the cassette (📼) warning lights. Otherwise, the tape remaining time is displayed and the tape remaining time warning blinks when the tape is about to reach its end.
When the Power Switch is set to "PLAY" and a tape is loaded: the cassette (📼) mark is displayed regardless of the Erase Protection tab's position.

② Recording Mode (SP/EP) Indicator ..... ☞ pg. 12

③, ⑨ Program AE Indicator ..... ☞ pg. 22
Displayed at ③ for approx. 1 second when the Select Dial is switched from one position to another. Then only the indicator remains at ⑨.

③, ⑩ Fade-Standby Indicator ..... ☞ pg. 24
Displayed at ③ for approx. 2 seconds when the Fader is engaged by pressing the EFFECT button. Then only the indicator remains at ⑩.

④ Multi-Function Control Indication ..... ☞ pg. 24
Displayed when any of the buttons located on the Multi-Function Control is pressed. The indication disappears within approx. 2 seconds.

⑤ Super LoLux Indicator ..... ☞ pg. 25

⑥ Tape Length Indicator ..... ☞ pg. 12

⑦ Zoom Indicator Bar ..... ☞ pg. 18

⑧ Recording Indicator ..... ☞ pg. 16

⑪ • Record–Standby Mode Indicator ..... ☞ pg. 16
• Lens Cover Warning:
LENS COVER ..... ☞ pg. 17

⑫ Interval Timer/Recording Time/
5Sec. Rec Mode Indicator ..... ☞ pgs. 19,32

⑬ Instant Title Display ..... ☞ pg. 25

⑭ Date/Time Display ..... ☞ pg. 20

⑮ Battery Pack Remaining Power Indicator
Changes as follows according to the battery pack's remaining power level: "🔋→🔋→🔋→▭". When the power is almost gone, the indicator "▭" blinks (battery power warning), then the unit shuts off. Replace the battery pack with a fully charged one.
Note: The symbol containing 3 darkened squares — 🔋 — does not necessarily mean that the battery pack is fully charged.

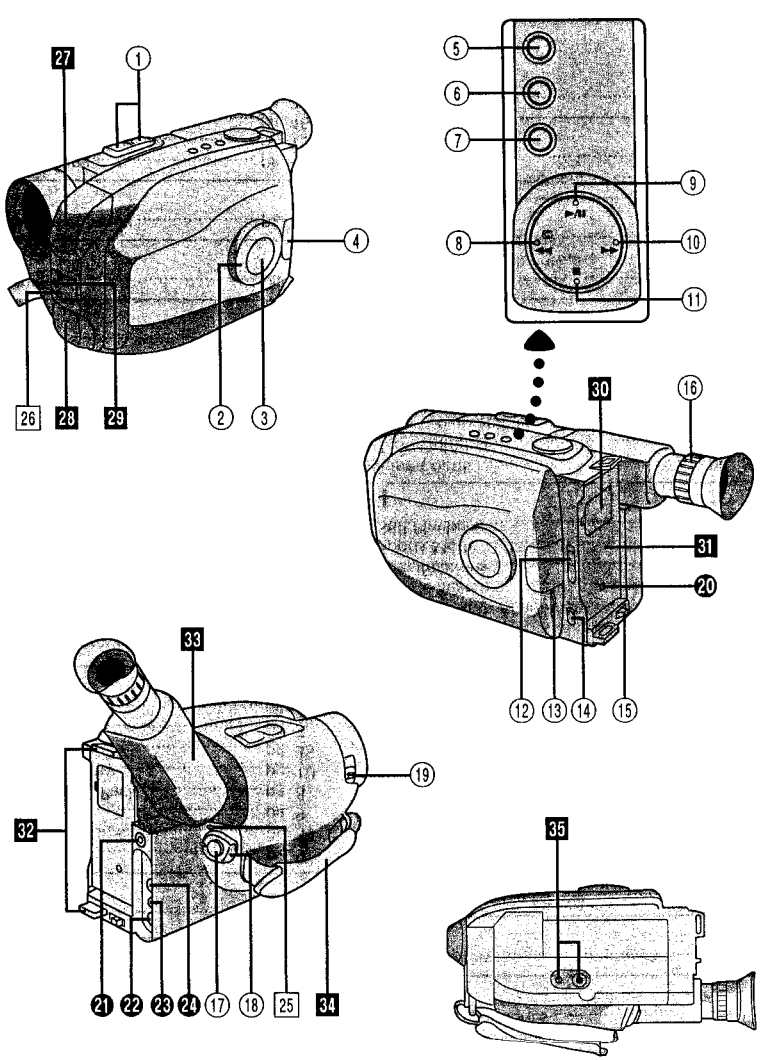
⑯ Focus Indicator ..... ☞ pg. 29

⑰ Exposure Control Level Counter ..... ☞ pg. 30

⑱ White Balance Mode Indicator ..... ☞ pg. 31

⑲ Clock Battery Warning
Blinks for approx. 10 seconds when the power is turned on. This display also blinks when the clock (lithium) battery is either not installed or has discharged. Install or replace the old battery with a new one (☞ pg. 10).

⑳ • Tape End Display: TAPE END ..... ☞ pg. 17
Appears when the end of the tape is reached during playback, recording or fast-forward.
• Condensation Warning: 💧
When this indication appears, all functions except tape eject and power on/off are disabled. Turn the unit off (without removing the power source) for a few hours, and when you turn it on again the indication should disappear.



Controls

① Power Zoom Button ..... ☞ pg. 18
② Select Dial ..... ☞ pg. 22
③ Multi-Function Control
- EFFECT Button ..... ☞ pg. 24
- WIDE Button ..... ☞ pg. 24
- TITLE Button ..... ☞ pg. 25
- SUPER LOLUX Button ..... ☞ pg. 25

④ PUSH Button ..... ☞ pg. 13
⑤ Recording Mode [SP/EP] Button ..... ☞ pg. 12
⑥ DATE/TIME Button ..... ☞ pg. 20
⑦ 5SEC. REC [5-sec recording] Button .... ☞ pg. 19
⑧ REW Button ..... ☞ pg. 36
RETAKE R [Quick Review] Button ..... ☞ pg. 19
⑨ PLAY/PAUSE Button ..... ☞ pg. 36
⑩ FF Button ..... ☞ pg. 36
RETAKE F Button ..... ☞ pg. 19
⑪ STOP Button ..... ☞ pg. 36
⑫ EJECT Switch ..... ☞ pg. 13
⑬ Function Navigator Dial [MENU Jog Dial] ..... ☞ pg. 11
⑭ LIGHT OFF/AUTO/ON Switch (GR-AX730 only) ..... ☞ pg. 21
⑮ BATT. [Battery] RELEASE Switch ..... ☞ pg. 8
⑯ Diopter Adjustment ..... ☞ pg. 14
⑰ Recording Start/Stop Button ..... ☞ pg. 16
⑱ Power Switch ..... ☞ pg.16, 36
⑲ LENS COVER Switch ..... ☞ pg. 16

Connectors

⑳ DC IN Jack ..... ☞ pg. 9

The jacks ㉑ to ㉔ are located beneath the jack cover. (GR-AX730 only)

㉑ J terminal [JLIP (Joint Level Interface Protocol) Connector.]
- Connect the editing cable when performing Random Assemble Editing (☞ pg. 42 – 45).
- It is used to connect the camcorder to a device such as a personal computer. For further detail consult your nearest JVC dealer.

㉒ VIDEO OUT Connector ..... ☞ pg. 35
㉓ RF DC OUT Connector ..... ☞ pg. 35
㉔ AUDIO OUT Connector ..... ☞ pg. 35

Indicators

[25] Power Indicator ..... ☞ pg. 16
[26] Tally Lamp (GR-AX730 only) ..... ☞ pg. 16

Other Parts

27 Video Light (GR-AX730 only) ..... ☞ pg. 21
28 Microphone
29 • Camera sensor
Be careful not to cover this area; built-in here is the sensor necessary for shooting.
• Remote Sensor (GR-AX730 only) ..... ☞ pg. 41
30 Clock Battery Compartment ..... ☞ pg. 10
31 Battery Pack Mount ..... ☞ pg. 8
32 Shoulder Strap Eyelets ..... ☞ pg. 15
33 Electronic Viewfinder ..... ☞ pg. 14
34 Grip Strap ..... ☞ pg. 14
35 Tripod Mounting Socket ..... ☞ pg. 15

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Animation Recording ..... pg. 33, 41
Audio Dubbing ..... pg. 47
Auto Date Record ..... pg. 20
Auto Focus ..... pg. 28
Auto Mode Lock Mode ..... pg. 23
Auto Mode Release Mode ..... pg. 23

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Brighten the Image ..... pg. 30

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Z

Zooming ..... pg. 18

DANGER:

Video Light

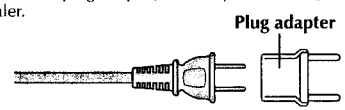
- The video light becomes extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot for some time.
- When operating, keep a distance of about 30 cm (1 ft.) between the video light and people or object.
- Do not use near flammable or explosive materials.
- It is recommended that you consult your nearest JVC dealer for replacing the video light.

When using the AC Power Adapter/Charger in areas other than the USA

■ The provided AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.

USING HOUSEHOLD AC PLUG ADAPTER

In case of connecting the unit's power cord to an AC wall outlet other than American National Standard C73 series type use an AC plug adapter, called a "Siemens Plug", as shown.
For this AC plug adapter, consult your nearest JVC dealer.



INFORMATION

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Change or modifications not approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

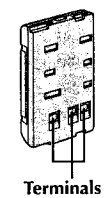
General Battery Precautions

- When the C-P6U or C-P7U (cassette adapter) is not functioning even when correctly operated, the battery is exhausted. Replace it with a fresh one.
- Use only the following battery:
  C-P6U or C-P7U ..... AA (R6) size

Please make note of the following rules for battery use. When misused, battery can leak or explode.

1. Refer to the C-P6U/C-P7U instructions when replacing the battery.
2. **Do not** expose the battery to excessive heat as it can leak or explode.
3. **Do not** dispose of battery in a fire.
4. Remove battery from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

Battery Packs



The supplied battery pack is a nickel-cadmium battery. Before using the supplied battery pack or an optional battery pack, be sure to read the following cautions:

1. **To avoid hazard . . .**
   ..... **do not** burn.
   ..... **do not** short-circuit the terminals.
   ..... **do not** modify or disassemble.
   ..... use only specified chargers.
2. **To prevent damage and prolong service life . . .**
   ..... **do not** subject to unnecessary shock.
   ..... avoid repeated charging without fully discharging.
   ..... charge in an environment where temperatures are within the tolerances shown in the chart below. This is a chemical reaction type battery—cooler temperatures impede chemical reaction, while warmer temperatures can prevent complete charging.
   ..... store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
   ..... avoid prolonged uncharged storage.
   ..... remove from charger or powered unit when not in use, as some machines use current even when switched off.

NOTES:

- *It is normal for the battery pack to be warm after charging, or after use.*
  Temperature Range Specifications
  Charging ..... 10°C to 35°C (50°F to 95°F)
  Operation ..... 0°C to 40°C (32°F to 104°F)
  Storage ..... –10°C to 30°C (14°F to 86°F)
- *Recharging time is based on room temperature of 20°C.*
- *The lower the temperature, the longer recharging takes.*

Cassettes

To properly use and store your cassettes, be sure to read the following cautions:

1. **During use . . .**
   .... make sure the cassette bears the VHS-C mark.
   .... be aware that recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
   .... make sure the cassette is positioned properly when inserting.
   .... do not load and unload the cassette repeatedly without allowing the tape to run at all. This slackens the tape and can result in damage.
   .... do not open the front tape cover. This exposes the tape to fingerprints and dust.
2. **Store cassettes . . .**
   .... away from heaters or other heat sources.
   .... out of direct sunlight.
   .... where they won't be subject to unnecessary shock or vibration.
   .... where they won't be exposed to strong magnetic fields (such as those generated by motors, transformers or magnets).
   .... vertically, in their original cases.

Main Unit

1. **For safety, DO NOT . . .**
   .... open the camcorder's chassis.
   .... disassemble or modify the unit.
   .... short-circuit the terminals of the battery pack. Keep it away from metallic objects when not in use.
   .... allow inflammables, water or metallic objects to enter the unit.
   .... remove the battery pack or disconnect the power supply while the power is on.
   .... leave the battery pack attached when the camcorder is not in use.
2. **Avoid using the unit . . .**
   .... in places subject to excessive humidity or dust.
   .... in places subject to soot or steam such as near a cooking stove.
   .... in places subject to excessive shock or vibration.
   .... near a television set.
   .... near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
   .... in places subject to extremely high (over 40°C or 104°F) or extremely low (under 0°C or 32°F) temperatures.
3. **DO NOT leave the unit . . .**
   .... in places of over 50°C (122°F).
   .... in places where humidity is extremely low. (below 35%) or extremely high (above 80%).
   .... in direct sunlight.
   .... in a closed car in summer.
   .... near a heater.
4. **To protect the unit, DO NOT . . .**
   .... allow it to become wet.
   .... drop the unit or strike it against hard objects.
   .... subject it to shock or excessive vibration during transportation.
   .... keep the lens directed at extremely bright objects for long periods.
   .... direct the eyepiece of the viewfinder at the sun.
   .... carry it by holding the viewfinder. Be sure to hold the main unit with both hands or use the grip.
   .... swing it excessively when using the shoulder strap.

About moisture condensation . . .

- You may have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass' outer surface. This same phenomenon occurs on the head drum of a camcorder when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the camcorder itself.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

GENERAL

Format	: VHS NTSC standard
Power source	: DC 6V ⎓
Power consumption	
•GR-AX730 light on	: 7.8 W
•GR-AX730 light off / GR-AX430	: 5.1 W
•GR-AX230	: 5.0 W
Signal system	: NTSC-type
Video recording system	
Luminance	: FM recording
Color	: Converted sub-carrier direct recording Conforms to VHS standard
Cassette	: VHS C cassette
Tape speed	
SP	: 33.35 mm/sec. (1-5/16 ips)
EP	: 11.12 mm/sec. (7/16 ips)
Recording time (max.)	
SP	: 40 minutes
EP	: 120 minutes (with TC-40 cassette)
Operating temperature	: 0°C to +40°C (32°F to 104°F)
Operating humidity	: 35% to 80%
Storage temperature	: –20°C to +50°C (–4°F to 122°F)
Weight	
•GR-AX730	: Approx. 790 g (1.8 lbs)
•GR-AX430	: Approx. 780 g (1.8 lbs)
•GR-AX230	: Approx. 800 g (1.8 lbs)
Dimensions (Including viewfinder)	
•GR-AX730/AX430	: 113 (W) x 117 (H) x 222 (D) mm (4-1/2" x 4-5/8" x 8-3/4")
•GR-AX230	: 113 (W) x 117 (H) x 242 (D) mm (4-1/2" x 4-5/8" x 9-9/16")

CAMERA

Pick up	: 1/4" format CCD
Lens	: F1.6, f = 3.8 to 83.6 mm, 22:1 power zoom lens with auto iris and macro control, filter diameter 46 mm
Viewfinder	: Electronic viewfinder with • 0.55" color LCD (GR-AX730/AX430) • 0.5" B/W CRT (GR-AX230)
White balance adjustment	: Auto/Manual adjustment

VIDEO

Output	: 1 Vp-p, 75 ohms, unbalanced (via VIDEO OUT connector)

AUDIO

Output	: –8 dBs, 1 k-ohm (via AUDIO OUT connector)

AC POWER ADAPTER/BATTERY CHARGER (AA-V15U)

Power requirement	
U.S.A. and Canada	: AC 120 V∿, 60 Hz
Other countries	: AC 110 V to 240 V∿, 50/60 Hz
Power consumption	: 23 W
Output	
Charge	: DC 8.5 V ⎓, 1.3 A
VTR	: DC 6.3 V ⎓, 1.8 A
Charging system	: Constant current, peak detection, timer controlled
Dimensions	: 140 (W) x 42 (H) x 68 (D) mm (5-9/16" x 1-11/16" x 2-11/16")
Weight	: Approx. 300 g (0.71 lbs)

CASSETTE ADAPTER (C-P7U)

Dimensions	: 188 (W) x 25 (H) x 104 (D) mm (7-7/16" x 1" x 4-1/8")
Weight	: Approx. 240 g (0.53 lbs)

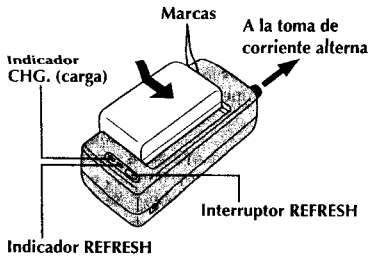
Provided Accessories ..... ☞ pg. 6

Optional Accessories

- **Battery Packs BN-V12U, BN-V22U, BN-V25U**
- **Car Battery Charger BH-V3U**
- **Battery Charger BH-VC10U**
- **Car Battery Cord AP-V7U/AP-V8U**
- **RF Unit RF-V5U**
- **Compact VHS-C Cassettes TC-40/30/20**
- **Active Carrying Bag CB-V7U**
- **Remote Control Unit RM-V700U**
- **Battery Case CU-V170U**
- **Shoe Adapter CU-V418U**
- **LCD Monitor LT-V18U**

Some acccessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

Specifications shown are for SP mode unless otherwise indicated.
E. & O. E. Design and specifications subject to change without notice.

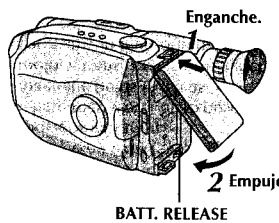


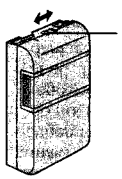
REFRESCADO

El adaptador de CA se caracteriza por la función REFRESH que le permite descargar totalmente la batería antes de recargarla. Efectúe la función REFRESH después de un mínimo de 5 cargas.

Para descargar las baterías . . .

..... coloque la batería en el adaptador como se muestra en la ilustración arriba. Luego presione REFRESH. El indicador REFRESH se enciende cuando se inicia la descarga y se apaga cuando la descarga ha terminado.





INDICADOR DE CARGA

Se ha suministrado un indicador de carga sobre la batería para ayudarle a recordar si ha sido cargado o no. Los dos colores suministrados (rojo y negro), le permiten seleccionar la carga y la descarga.

ATENCION:

Antes de desmontar la fuente de alimentación, asegúrese que la alimentación de la cámara de video esté desconectada. El no hacerlo puede producir una falla de funcionamiento en la cámara de video.

Alimentación

Esta cámara de video posee un sistema de alimentación de 3 vías que le permite seleccionar la fuente de alimentación más apropiada.

NOTAS:

- *Sin alimentación no hay ninguna función disponible.*
- *Utilice exclusivamente la alimentación indicada.*
- *No utilice la unidades de alimentación suministradas con otro equipo.*

CARGA DE LA BATERIA

1 ALIMENTACION

Conecte el cable de alimentación de CA del cargador a una toma de corriente.

2 COLOCACION DE LA BATERIA

Alinee las marcas y deslice la batería en la dirección de la flecha hasta que quede bloqueada en su lugar.
El indicador CHG. comienza a parpadear indicando que se ha iniciado la carga.

3 EXTRACCION DE LA BATERIA

Cuando el indicador CHG. para de destellear, pero continúa encendido, la carga ha terminado. Deslice la batería en el sentido opuesto al de la flecha.

BATERIA	CARGA	DESCARGA
BN-V11U	aprox. 1 h 10 m	aprox. 3 h 30 m
BN-V12U	aprox. 1 h 10 m	aprox. 3 h 30 m
BN-V22U	aprox. 2 h 10 m	aprox. 7 h
BN-V25U	aprox. 2 h 40 m	aprox. 10 h

USO DE LA BATERIA

1 COLOCACION DE LA BATERIA

Enganche la parte superior del mismo en la cámara de video y empújela hasta que se bloquee en su lugar.

2 EXTRACCION DE LA BATERIA

Deslice **BATT. RELEASE** y extraiga la batería.

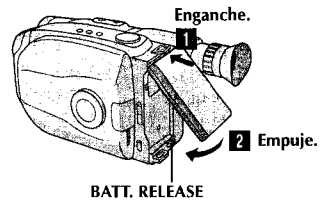
Tiempo de grabación aproximado (unidad: min)

BATERIA	GR-AX730/AX430	GR-AX230
BN-V11U	75 (40)	75
BN-V12U	75 (40)	75
BN-V22U	150 (95)	155
BN-V25U	200 (125)	200

( ) : cuando el foco de video está encendido. (GR-AX730 exclusivamente)

Si la unidad comienza a funcionar mal, deje de usarla inmediatamente y consulte a su concesionario local de JVC.

ALIMENTACION



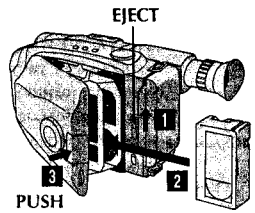
Utilización de la batería

1 Enganche el extremo superior de la batería en la cámara de video. (Procedimiento para carga, ☞ P. 8)
2 Empuje la batería hacia adentro hasta que quede bloqueada en su lugar.

Para extraer la batería

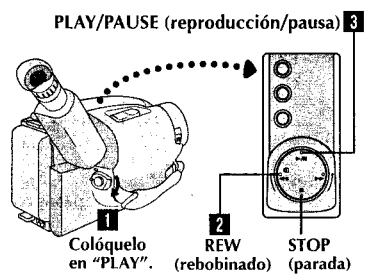
Deslice **BATT. RELEASE** y extraiga la batería.

INSERCION DEL CASSETTE DE VIDEO



1 Deslice **EJECT** para abrir el portacassette.
2 Inserte cassette de video.
3 Presione **PUSH** para cerrar el portacassette. (Por más detalles, ☞ P. 13.)

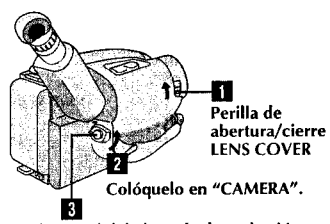
REPRODUCCION



1 Ajuste el interruptor de alimentación en "PLAY".
2 Presione **REW**.
— La cinta se detiene automáticamente al comienzo de la misma.
3 Presione **PLAY/PAUSE**.
— Comienza la reproducción y la imagen aparece.
• Presione **STOP** para detener la grabación. (Por más detalles, ☞ P. 36.)

O simplemente reproduzca la cinta en un VCR de VHS utilizando el adaptador de cassette (VHS Playpak). ☞ P. 34

FILMACION



1 Deslice la perilla de abertura/cierre **LENS COVER** para abrir la tapa del objetivo.
2 Adjuste el interruptor de alimentación en "CAMERA".
— El indicador de alimentación se encenderá y aparecerá una imagen.
3 Presione el botón inicio/parada de grabación.
— Comenzará la grabación.
• Para detener temporariamente la grabación, presione nuevamente el botón de inicio/parada de grabación. (Por más detalles, ☞ P. 16, 17.)

FOR SERVICING (Only in U.S.A.)

HOW TO LOCATE YOUR JVC SERVICE CENTER

TOLL FREE: 1-800-252-5722

Dear customer:

In order to receive the most satisfaction from your purchase, read the instruction booklet before operating the unit. In the event that repair is necessary, or for the address nearest your location, please refer to the factory service center list below or within the Continental United States, call 1-800-252-5722 for your authorized servicer. Remember to retain your Bill of Sale for Warranty Service.

— JVC

JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.
FACTORY SERVICE CENTER LOCATIONS

107 Little Falls Road Fairfield, NJ 07004-2105 (973) 808-9279	1500 Lakes Parkway Lawrenceville, GA 30243-5857 (770) 339-2522	705 Enterprise Street Aurora, IL 60504-8135 (630) 851-7855
5665 Corporate Avenue Cypress, CA 90630-4727 (714) 229-8011	10700 Hammerly Blvd., Suite 110 Houston, TX 77043-2310 (713) 935-9331	2969 Mapunapuna Place, Suite 101 Honolulu, HI 96819-2000 (808) 833-5828
230 Eliot Street Ashland, MA 01721-2377 (508) 881-5923	8192 West State Road 84 Davie, FL 33324-4611 (954) 472-1960	890 Dubuque Avenue South San Francisco, CA 94080-1804 (415) 871-2666

Sophisticated electronic products may require occasional service. Just as quality is a keyword in the engineering and production of the wide array of JVC products, service is the key to maintaining the high level performance for which JVC is world famous. The JVC service and engineering organization stands behind our products.

NATIONAL HEADQUARTERS
JVC SERVICE & ENGINEERING COMPANY OF AMERICA
DIVISION OF US JVC CORP.
107 Little Falls Road
Fairfield, NJ 07004-2105

If you ship the product...

Pack your JVC unit in the original carton or one of equivalent size and strength. Enclose, with the unit, a letter stating the problem or symptom that exists and also a copy of the receipt or bill of sale you received when you purchased your JVC unit. Print your home return address on the outside and the inside of the carton. Send to the appropriate JVC Factory Service Center as listed above.

ACCESSORIES

To purchase accessories for your JVC product, you may contact your local JVC Dealer.
Or from the 48 Continental United States call toll free:
1-800-882-2345.

Don't service it yourself.

CAUTION

To prevent electrical shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

WARRANTY (Only in U.S.A.)

LIMITED WARRANTY — CONSUMER VIDEO 1-90

JVC COMPANY OF AMERICA warrants this product and all parts thereof, except as set forth below ONLY TO THE ORIGINAL PURCHASER AT RETAIL to be FREE FROM DEFECTIVE MATERIALS AND WORKMANSHIP from the date of original retail purchase for the period as shown below. ("The Warranty Period")

PARTS	1 YR	LABOR	90 DAYS

THIS LIMITED WARRANTY IS VALID ONLY IN THE FIFTY (50) UNITED STATES, THE DISTRICT OF COLUMBIA AND IN COMMONWEALTH OF PUERTO RICO.

WHAT WE WILL DO:
If this product is found to be defective, JVC will repair or replace defective parts at no charge to the original owner. Such repair and replacement services shall be rendered by JVC during normal business hours at JVC authorized service centers. Parts used for replacement are warranted only for the remainder of the Warranty Period. All products and parts thereof may be brought to a JVC authorized service center on a carry-in basis except for Television sets having a screen size 25 inches and above which are covered on an in-home basis.

WHAT YOU MUST DO FOR WARRANTY SERVICE:
Return your product to a JVC authorized service center with a copy of your bill of sale. For your nearest JVC authorized service center, please call toll free: (800) 252-5722.

If service is not available locally, box the product carefully, preferably in the original carton, and ship, insured, with a copy of your bill of sale plus a letter of explanation of the problem to the nearest JVC Factory Service Center, the name and location of which will be given to you by the toll-free number.

If you have any questions concerning your JVC Product, please contact our Customer Relations Department.

WHAT IS NOT COVERED:
This limited warranty provided by JVC does not cover:
1. Products which have been subject to abuse, accident, alteration, modification, tampering, negligence, misuse, faulty installation, lack of reasonable care, or if repaired or serviced by anyone other than a service facility authorized by JVC to render such service, or if affixed to any attachment not provided with the products, or if the model or serial number has been altered, tampered with, defaced or removed;
2. Initial installation and installation and removal for repair;
3. Operational adjustments covered in the Owner's Manual, normal maintenance, video and audio head cleaning;
4. Damage that occurs in shipment, due to act of God, and cosmetic damage;
5. Signal reception problems and failures due to line power surge;
6. Video Pick-up Tubes/CCD Image Sensor, Cartridge, Stylus (Needle) are covered for 90 days from the date of purchase;
7. Accessories;
8. Batteries (except that Rechargeable Batteries are covered for 90 days from the date of purchase);from the date of purchase);

There are no other express warranties except as listed above.
THE DURATION OF ANY IMPLIED WARRANTIES INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY, IS LIMITED TO THE DURATION OF THE EXPRESS WARRANTY HEREIN.

JVC SHALL NOT BE LIABLE FOR THE LOSS OF USE OF THE PRODUCT, INCONVENIENCE, LOSS OR ANY OTHER DAMAGES, WHETHER DIRECT, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, WITHOUT LIMITATION, DAMAGE TO TAPES, RECORDS OR DISCS) RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE LIMITED TO THE WARRANTY PERIOD SET FORTH ABOVE.

Some states do not allow the exclusion of incidental or consequential damages or limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

JVC COMPANY OF AMERICA
DIVISION OF US JVC CORP.
41 Slater Drive
Elmwood Park, New Jersey 07407

REFURBISHED PRODUCTS CARRY A SEPARATE WARRANTY, THIS WARRANTY DOES NOT APPLY. FOR DETAILS OF REFURBISHED PRODUCT WARRANTY, PLEASE REFER TO THE REFURBISHED PRODUCT WARRANTY INFORMATION PACKAGED WITH EACH REFURBISHED PRODUCT.

For customer use:
Enter below the Model No. and Serial No. which is located either on the rear, bottom or side of the cabinet. Retain this information for future reference.

Model No.: _____ **Serial No:** _____

Purchase date: _____ **Name of dealer:** _____

SECTION 1
DISASSEMBLY

1.1 SERVICE CAUTIONS

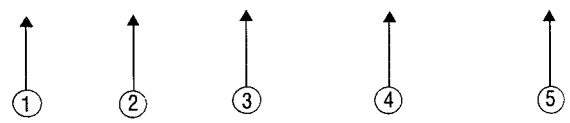
1.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. In general, chip parts such as resistor, shorting jumpers (0-ohm resistor), ceramic capacitors, diodes, etc. can not be reused after they were once removed.
4. When installing parts, be careful not to do with other parts as well as not to damage others.
5. When removing ICs, be careful not to damage circuit patterns.

1.1.2 How to read the disassembly and assembly

(For Cabinet Parts)

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 4(L1), 2(L2) PUSH BUTTON *CONNECTOR (A)	<NOTE 1> <NOTE 2>
②	REAR COVER ASSEMBLY	C2	7(S2), (S3), (L3) JACK COVER/CAP (LITHIUM) /SWITCH (EJECT/DC LIGHT)	<NOTE 3>
③	TOP COVER ASSEMBLY	C3	2(S2),2(L4), 3(L5), 2(L6)	–
④	UPPER CASE	C4	2(S2), (L7)	–



① : Order of steps in Procedure
When reassembling, preform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

② : Part to be removed or installed.

③ : Fig. No. showing Procedure or Part Location.
C = Cabinet
CA = Camera
D = Deck

④ : Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.
6(S2) = 6 Screws (S2)

⑤ : Adjustment information for installation.

1.1.3 Connection of the wires

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

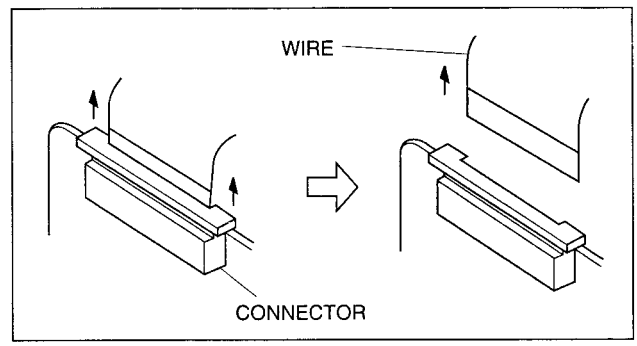


Fig. 1-1-1

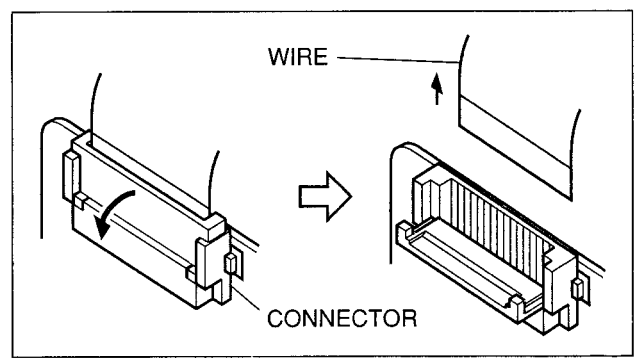


Fig. 1-1-2

1.1.4 Main screws to deal with disassembly/assembly

Table 1-1-1 lists screws by their symbols correspond to those shown in figures of this section "Disassembly".

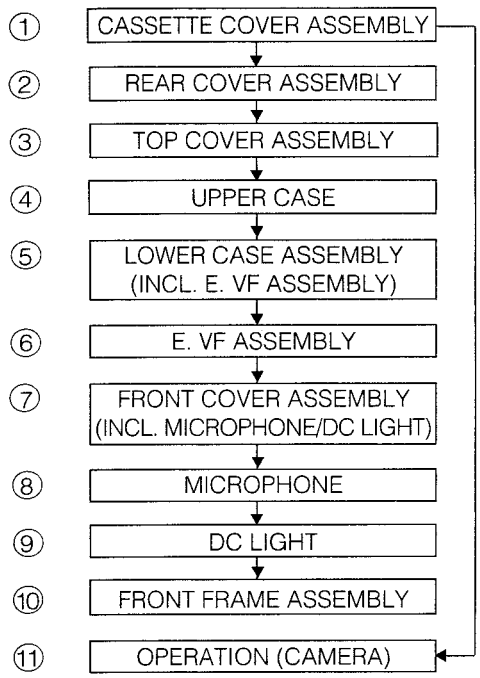
SYMBOL	SHAPE	PARTS NO.
(S1)		QYSLSP2030D
(S2)		QYSLSF2055D
(S3)		QYSLSF20A0D
(S4)		SPSH1725M
(S5)		LY30018-009A
(S6)		YQ43762-4
(S7)		SPSN2090Z
(S8)		QYSPSTU1750M
(S9)		QYSPSTU1725M
(S10)		QYSLSF1750D
(S11)		YQ44457-3

Table 1-1-1

1.2 DISASSEMBLY/ASSEMBLY OF CABINET PARTS

1.2.1 Disassembly flow chart

This flowchart indicates the disassembly step for the cabinet parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.


① CASSETTE COVER ASSEMBLY
② REAR COVER ASSEMBLY
③ TOP COVER ASSEMBLY
④ UPPER CASE
⑤ LOWER CASE ASSEMBLY (INCL. E. VF ASSEMBLY)
⑥ E. VF ASSEMBLY
⑦ FRONT COVER ASSEMBLY (INCL. MICROPHONE/DC LIGHT)
⑧ MICROPHONE
⑨ DC LIGHT
⑩ FRONT FRAME ASSEMBLY
⑪ OPERATION (CAMERA)

1.2.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 4(L1), 2(L2) PUSH BUTTON *CONNECTOR (A)	<NOTE 1> <NOTE 2>
②	REAR COVER ASSEMBLY	C2	7(S2), (S3), (L3) JACK COVER/CAP (LITHIUM) /SWITCH (EJECT/DC LIGHT)	<NOTE 3>
③	TOP COVER ASSEMBLY	C3	2(S2),2(L4), 3(L5), 2(L6)	–
④	UPPER CASE	C4	2(S2), (L7)	–
⑤	LOWER CASE ASSEMBLY (INCL. MIC/DC LIGHT)	C5	6(S2), (L8), (L9), (L10) *CONNECTOR (B) GRIP BELT	<NOTE 1> <NOTE 4>
⑥	E. VF ASSEMBLY	C6	(S2) 2(L11)	<NOTE 5>
⑦	FRONT COVER ASSEMBLY (INCL. MIC/DC LIGHT)	C7	(S2), (L12), (L13) *CONNECTOR (C) O RING	<NOTE 1> <NOTE 6>
⑧	MICROPHONE	C7	(S2)	–
⑨	COVER (LIGHT)	C7	2(L14)	<GR-AX230/AX430>
	DC LIGHT	C7	2(L14)	<GR-AX730>
⑩	FRONT FRAME ASSEMBLY	C8	2(S4)	–
⑪	OPERATION (CAMERA)	C9	4(S2)	–

List of Abbreviations:
2(S1)=2 Screw (S1)
2(L1)=2 Locking Tabs (L1)

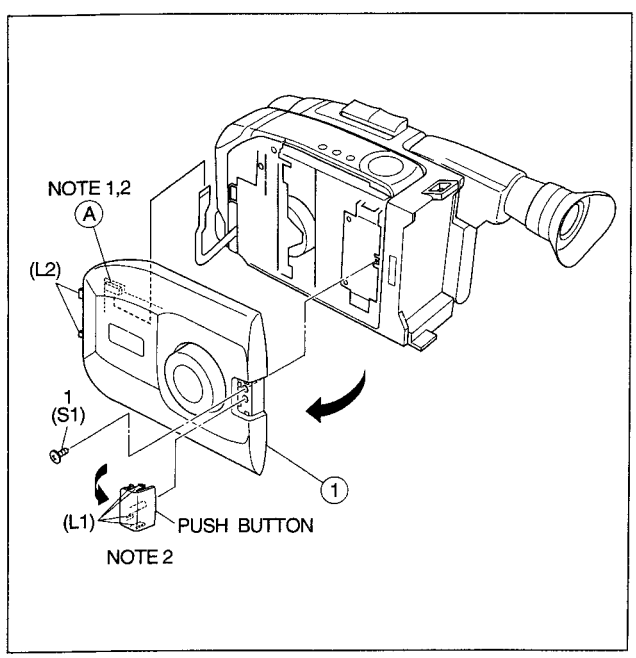


Fig. C1

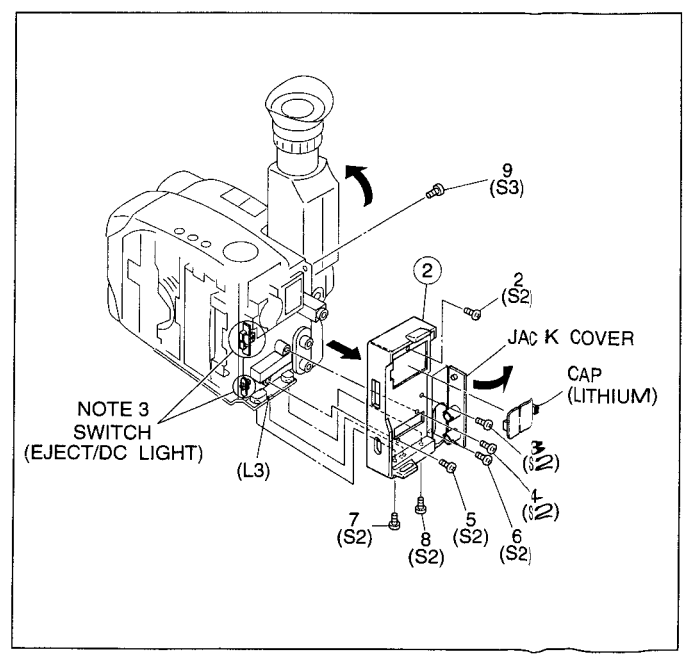


Fig. C2

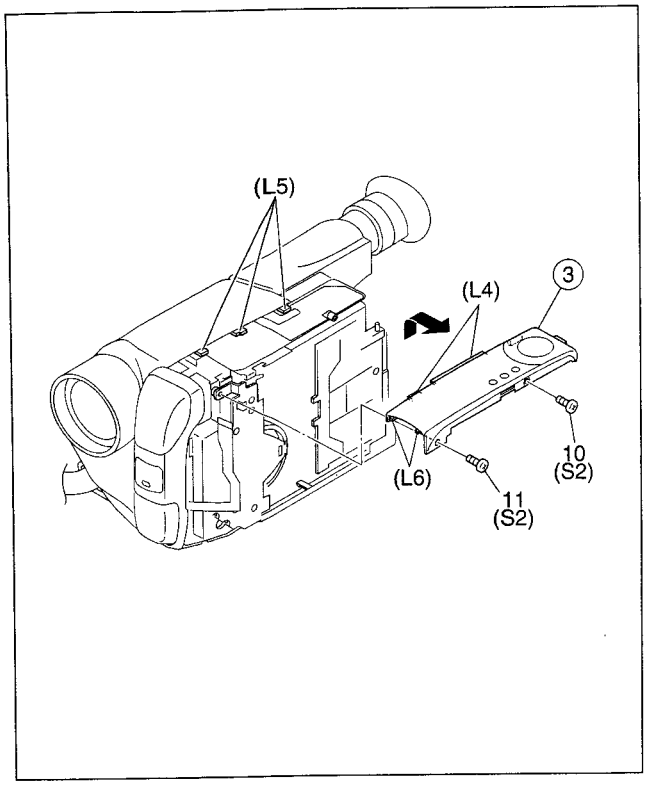


Fig. C3

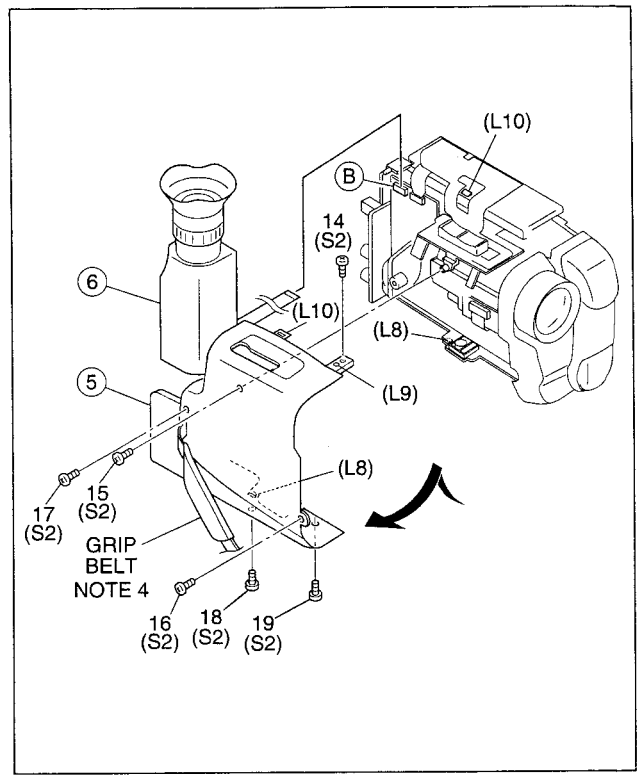


Fig. C5

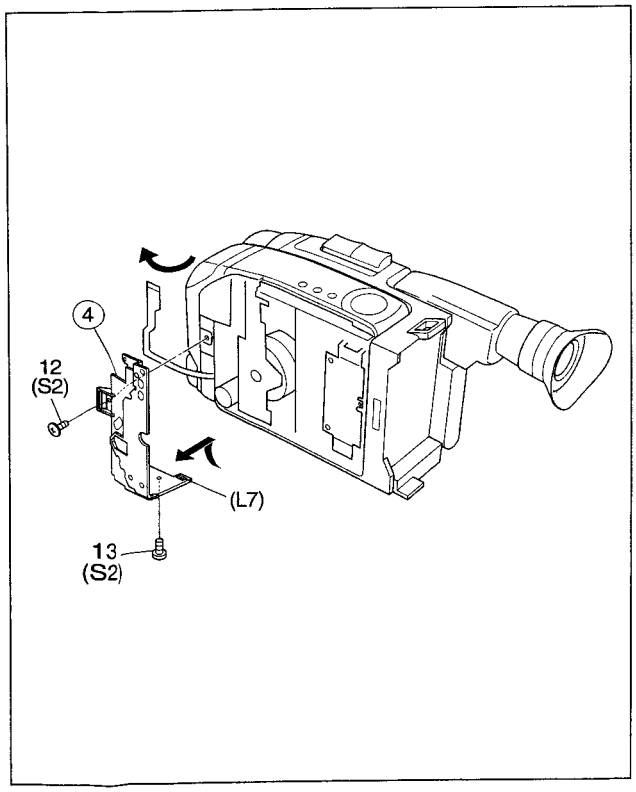


Fig. C4

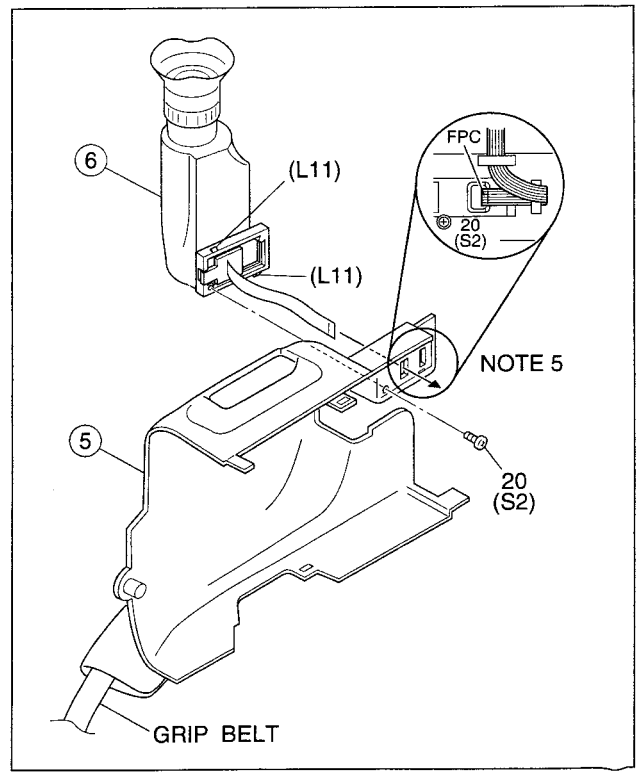


Fig. C6

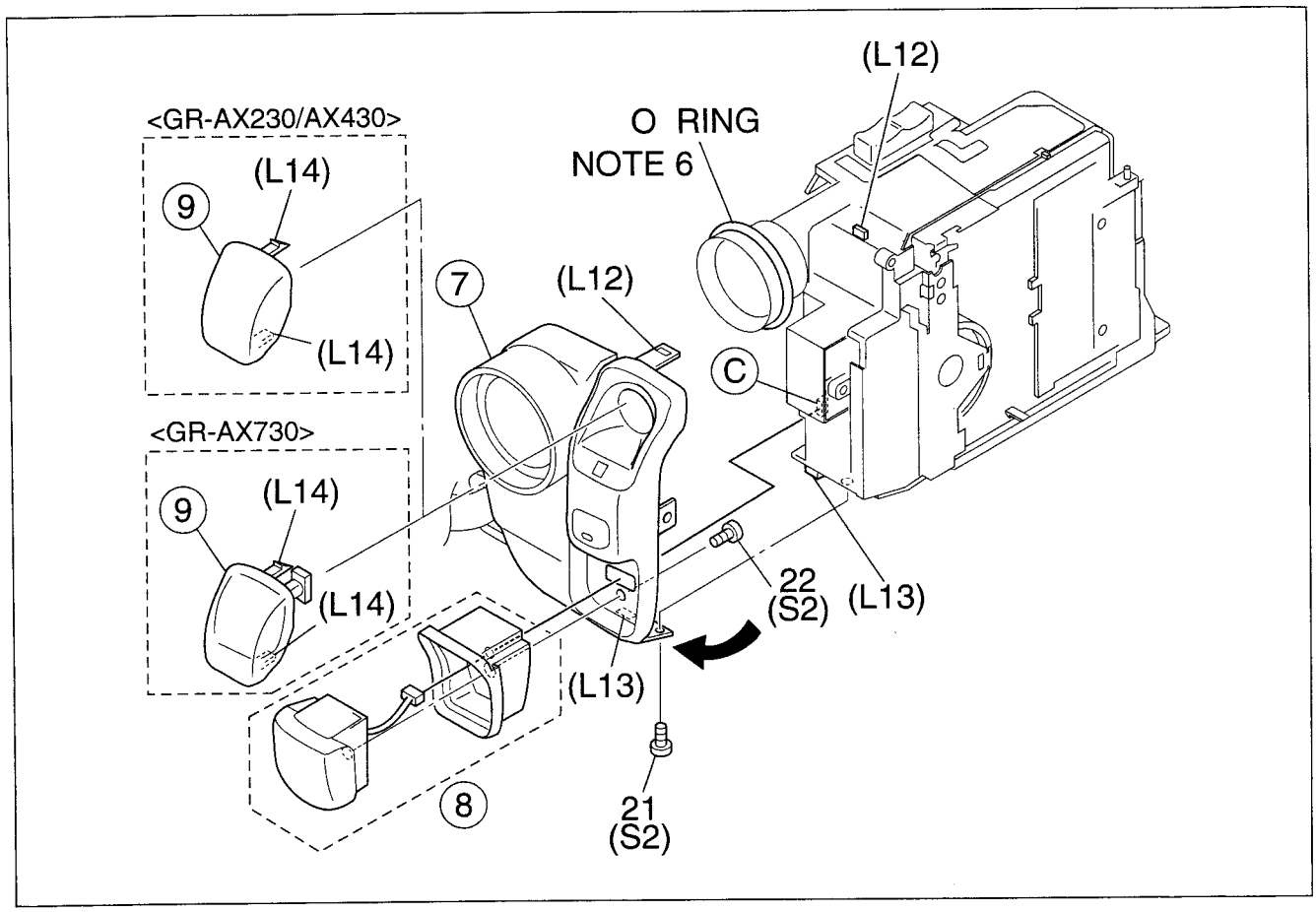


Fig. C7

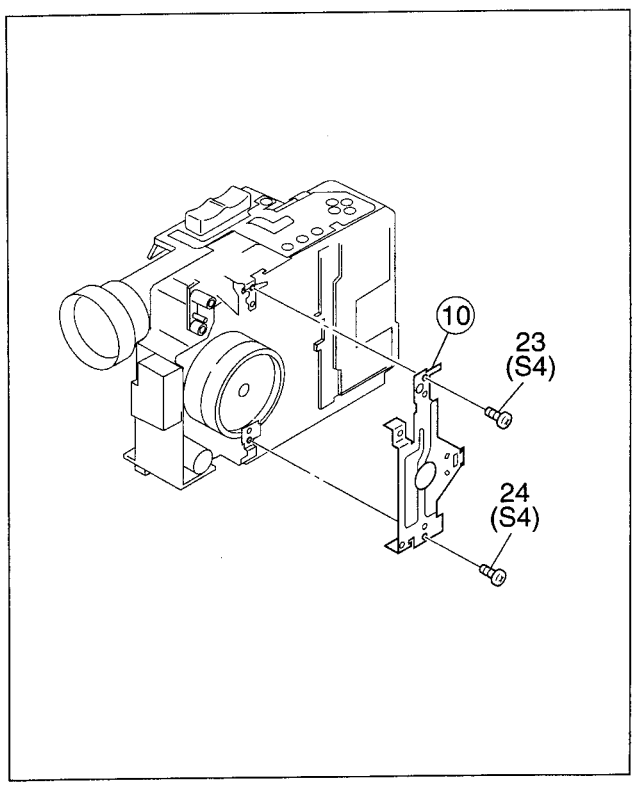


Fig. C8

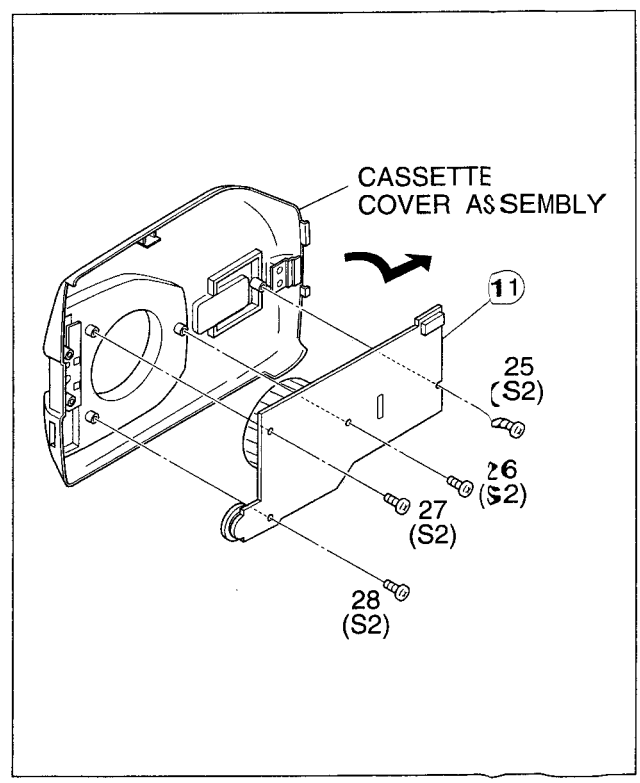


Fig. C9

Reference Notes:
<NOTE 1>
Destination of connectors
Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*
⟷ : Board to Board connector
⟺ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector
Ⓐ	10	OPERATION (CAMERA) ⟺ MAIN1 CN16
Ⓑ	10	E. VF (B/W) ⟺ MAIN1 CN12 <GR-AX230/AX430>
	14	E. VF (COLOR) ⟺ MAIN1 CN12 <GR-AX730>
Ⓒ	5	MIC ↔ MAIN1 CN8

<NOTE 2>
First remove the push button, then remove one SCREW (1). Next disconnect connector Ⓐ, then remove the cassette cover assembly ①.

<NOTE 3>
When removing the rear cover assembly, pay careful attention to the knob of the switch (EJECT/*DC LIGHT) to get it neither damaged nor lost.
* : ONLY USE FOR GR-AX730

<NOTE 4>
First remove the grip belt, then remove the lower case assembly ⑤.

<NOTE 5>
When removing the E. VF assembly, first disengage the FPC from the hook to make it loose. At that time, be careful not to break the wiring of the FPC.

<NOTE 6>
When removing the front cover assembly, pay careful attention to the O-ring not to lose it.
If the O-ring comes off, set it in the groove outside the optical lens.

1.3 DISASSEMBLY/ASSEMBLY OF CAMERA PARTS

1.3.1 Disassembly flow chart

This flowchart indicates the disassembly step for the CAMERA parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.

① OPE (DECK) BOARD ASSEMBLY
↓
② OP BLOCK ASSEMBLY
↓
③ CCD IMAGE SENSOR

*Refer to section 1.4

1.3.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	OPE (DECK) BOARD ASSEMBLY	CA1	*CONNECTOR Ⓓ 3(S2) 2(L1), 2(L2), (L3)	<NOTE 1>
②	OP BLOCK ASSEMBLY	CA1	*CONNECTOR Ⓔ Ⓕ 2(S5), 2(S6)	<NOTE 1> <NOTE 2>

List of Abbreviations:
3(S2) = 3 Screws (S2)
(L3) = 1 Locking Tab (L3)

Reference Notes:
<NOTE 1>
Destination of connectors
Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*
⟷ : Board to Board connector
⟺ : Flat wire
↔ : Wire

Con-nector	No. of Pins	Connector
Ⓓ	12	MAIN1 CN13 ⟺ OPERATION (DECK)
Ⓔ	22	OP BLOCK ⟺ MAIN1 CN15
Ⓕ	14	OP BLOCK ⟷ CCD CN5201

<NOTE 2>
Move the CCD board in the direction of the rear side. At that time, pay careful attention to pins (connector Ⓕ) of the CCD image sensor so as not to damage them.

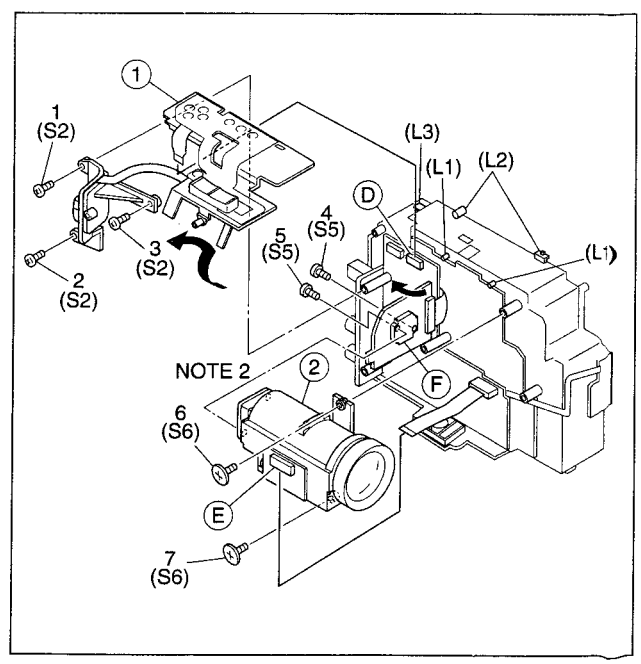


Fig. CA1

1.4 REPLACEMENT OF CCD IMAGE SENSOR

Notes:

- *Pay the most careful attention to the transparent glass and optical LPF of the CCD image sensor so a not the soil and damage them. If something is soiled with finger-prints, etc., gently clean it with silicon-processed paper/cloth or chamois.*
- *When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just before assembling the CCD image sensor to the OP block.*

1.4.1 Removal of CCD image sensor

1. Remove two screws (1, 2) securing the CCD base, and disassemble the CCD spacer, the optical LPF, spacer rubber.

1.4.2 Installation of new CCD image sensor

1. Remove the protection seal from a new CCD image sensor. Next, put the spacer rubber, optical LPF, CCD spacer on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item refering to the following table (see Fig. 1-4-1).

Part Name	Orientation
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ.
Spacer rubber	IC side is horizontal.
Optical LPF	Marks are on the left and bottom viewed as indicated by the arrow ⓐ.

2. Fix the CCD base to OP block with the two screws (1, 2). At that time, be careful of the orientation.
3. After completion of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.

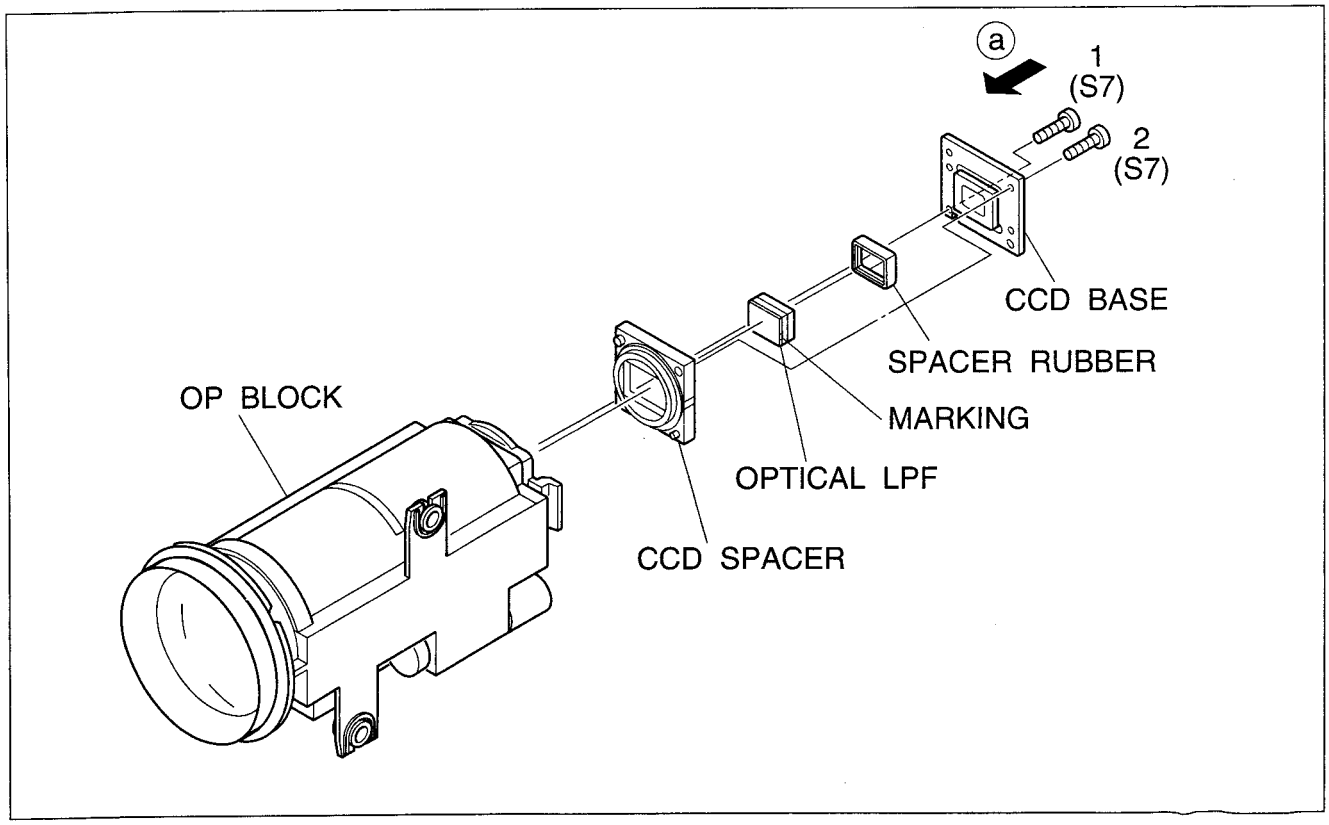
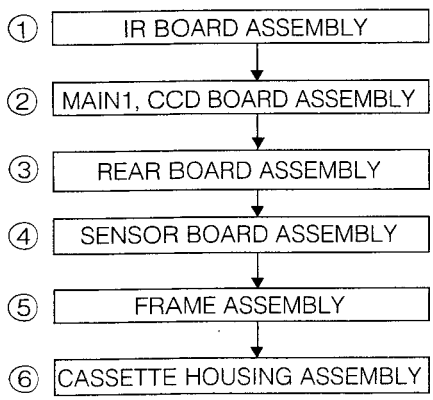


Fig. 1-4-1

1.5 DISASSEMBLY/ASSEMBLY OF DECK PARTS

1.5.1 Disassembly flow chart

This flowchart indicates the disassembly step for the DECK parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.


① IR BOARD ASSEMBLY
② MAIN1, CCD BOARD ASSEMBLY
③ REAR BOARD ASSEMBLY
④ SENSOR BOARD ASSEMBLY
⑤ FRAME ASSEMBLY
⑥ CASSETTE HOUSING ASSEMBLY

1.5.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	*REMOVAL*	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	IR BOARD ASSEMBLY	D1	2(L1) *CONNECTOR Ⓖ	<NOTE 1>
②	MAIN1, CCD BOARD ASSEMBLY	D1	3(S2), (L2) *CONNECTOR Ⓗ,Ⓙ,Ⓚ	<NOTE 1> <NOTE 2> <NOTE 3>
③	REAR BOARD ASSEMBLY	D1	2(L3), (L4)	–
④	SENSOR BOARD ASSEMBLY	D1	3(S8), (S9), 2(L5) *CONNECTOR Ⓛ,Ⓜ,Ⓝ Ⓞ,Ⓟ,Ⓠ	<NOTE 1> <NOTE 4>
⑤	FRAME ASSEMBLY	D1	2(S10),(S1)	–
⑥	CASSETTE HOUSING ASSEMBLY	D2	4(S11)	–

List of Abbreviations:
3(S2) = 3 Screws (S2)
2(L1) = 2 Locking Tabs (L1)

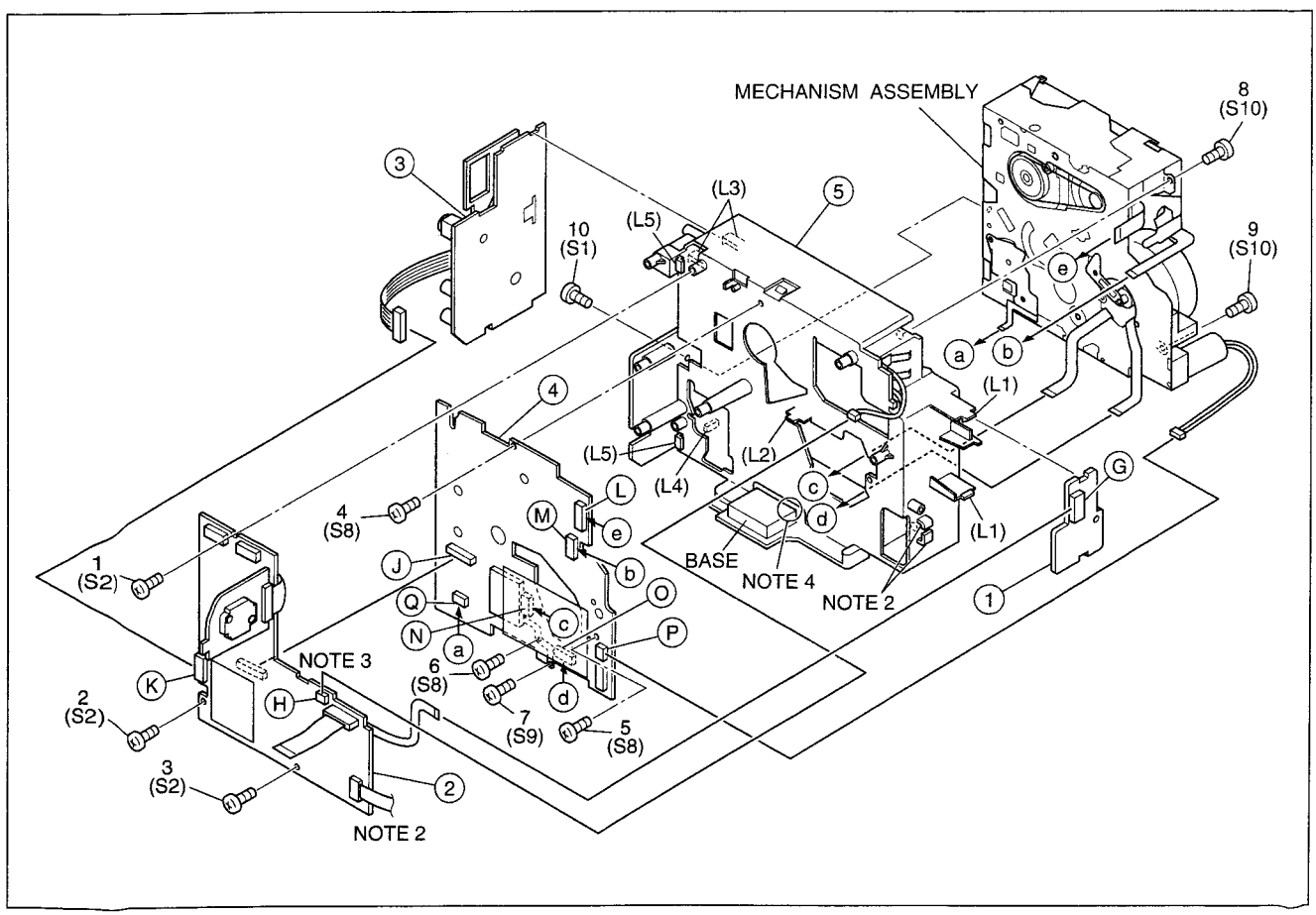


Fig. D1

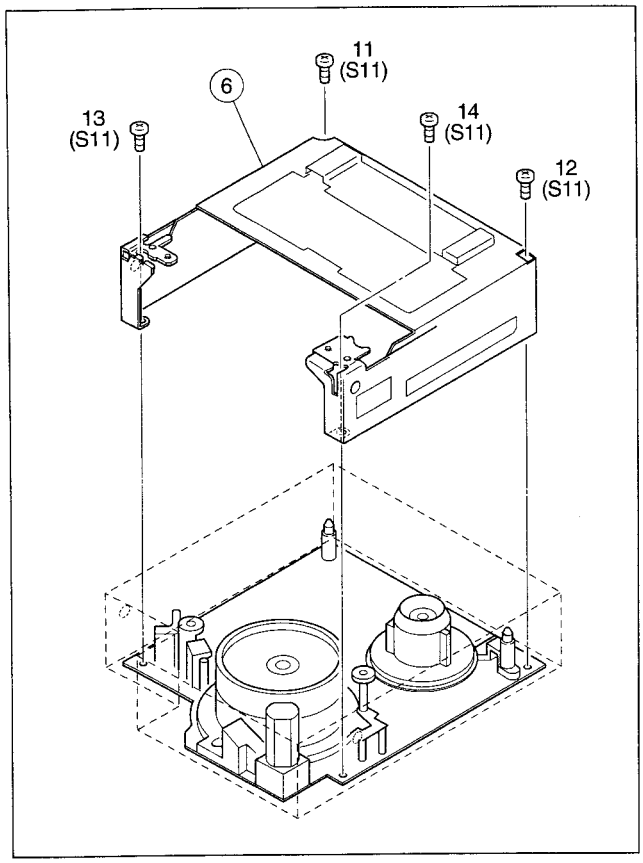


Fig. D2

Reference Notes:
<NOTE 1>
Destination of connectors
Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*
⟷ : Board to Board connector
⟺ : Flat wire
↔ : Wire

Connector	No. of Pins	Connector
Ⓖ	7	MAIN1 CN23 ⟺ IR CN1
Ⓗ	2	MAIN1 CN14 ↔ DC LIGHT
Ⓙ	60	MAIN1 CN21 ⟷ SENSOR CN6
Ⓚ	13	MAIN1 CN11 ↔ REAR CN31
Ⓛ	18	SENSOR CN3 ⟺ CAPSTAN MOTOR
Ⓜ	11	SENSOR CN7 ⟺ A/C HEAD
Ⓝ	11	SENSOR CN5 ⟺ VIDEO HEAD
Ⓞ	10	SENSOR CN1 ⟺ DRUM MOTOR
Ⓟ	2	SENSOR CN4 ↔ LOADING MOTOR
Ⓠ	6	SENSOR CN2 ⟺ ROTARY ENCODER

<NOTE 2>
When removing the board, be sure to disconnect the FPC board from CN16 of the MAIN1 board assembly beforehand.

<NOTE 3>
Connector Ⓗ (only use for GR-AX730.)

<NOTE 4>
The SENSOR board is set between the frame assembly and the base.
For removing the SENSOR board, remove the base in advance, or remove L5 first and then remove the board while getting it free from hindrance of other parts.

1.6 TO TAKE OUT CASSETTE TAPE

In the event that the set enters the emergency mode as it is loaded with a cassette tape and the cassette tape cannot be ejected with the EJECT button, manually, take it out of the set according to the following procedure.

Note: *If the mechanism comes into the unloading mode as the cassette tape is not held by hand, it results in tape damage.*

1. Disconnect the set from the power source.
2. Remove the cassette cover assembly, rear cover assembly and top cover assembly. (See Fig. C1, C2 and C3 page 1-1, 2 and 3)
3. Connect a jumper wire to each pole of the loading motor as shown by the magnified view ⓑ (Fig. 1-6-1)
4. While holding down the cassette housing by hand, connect the jumper wires to a battery to run the mechanism to the EJECT position four unloading. If this unloading operation is performed as the cassette housing is not held down by hand, the front lid of the cassette may damage the tape when it is ejected.
5. For taking in the slack of the tape, run the mechanism to the EJECT position as the front lid of the cassette is left open, and turn the take-up reel in the forward direction to wind up the tape. After confirming that the tape has completely been wound up and the supply reel is idling, take the cassette tape out of the cassette housing.

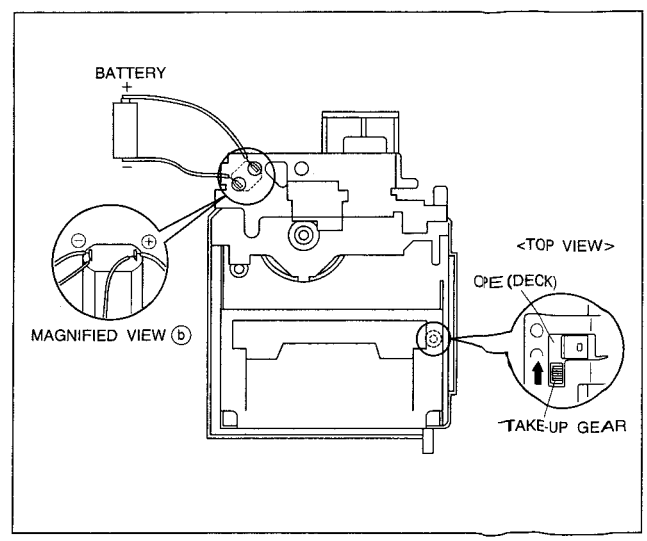


Fig. 1-6-1

1.7 EXTENSION CABLE CONNECTION

Connector	Pins	Connection			Part Number
①	60	MAIN1 CN21	⟷	SENSOR CN6	YTU94112A-60
②	22	MAIN1 CN15	⟷	OP BLOCK	YTU94074-22 YTU94077-22
③	7	MAIN1 CN23	⟷	IR CN1	TYU94074-7 YTU94077-7
④	10	MAIN1 CN12	⟷	E. VF (B/W)	YTU94074-10 YTU94077-10
	14	MAIN1 CN12	⟷	E. VF (COLOR)	YTU94074-14 YTU94077-14
⑤	12	MAIN1 CN13	⟷	OPERATION (DECK)	YTU94074-12 YTU94077-12
⑥	5	SENSOR CN8	⟷	MICROPHONE	YUJ40095A-5

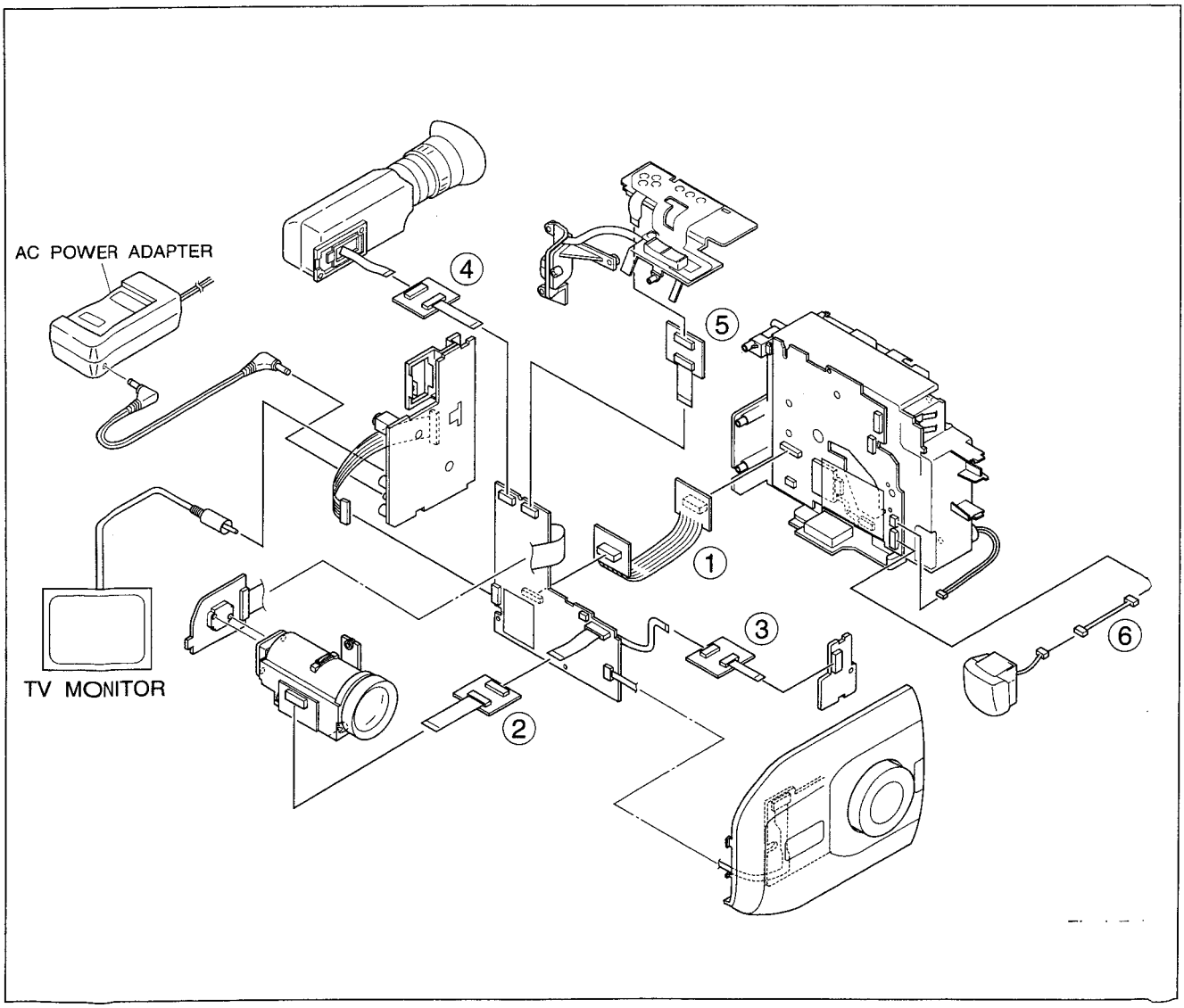


Fig. 1-7-1

SECTION 2
MECHANISM ADJUSTMENT

2.1 SERVICE CAUTIONS

2.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. When installing parts, be careful not to do with other parts as well as not to damage others. (Pay the most careful attention to the upper drum assy and tape transport mechanism.)

2.1.2 How to read the disassembly and assembly (For Mechanism Parts)

①: Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

②: Part to be removed or installed.

③: Location of part.
T = Top
B = Bottom

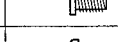
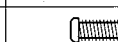
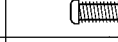
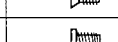
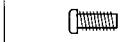
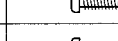
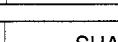
④: Fig. No. showing Procedure or Part Location.
M = Mechanism

⑤: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.

⑥: Adjustment information for installation.
(+) = Refer to Exploded Views for Lubrication information.

2.1.3 Main screws and washers to deal with disassembly/assembly

Table 2-1-1 lists screws and washers by their symbols which correspond to those shown in figures of this section "Disassemby and Assembly".

SYMBOL OF SCREW	SHAPE	PART NUMBER
S1		YQ44457
S2		LY40320-002A
S3		YQ44457-2
S4		SPSN1750Z
S5		YQ44304
S6		YQ44460
S7		LY40320-001A
S8		SPSH1740Z
S9		YQ44457-5
S10		SPSH1730M

SYMBOL OF WASHER	SHAPE	PART NUMBER
W1		PQM3O017-27
W2		Q03093-835
W3		PQM3O017-25
W4		LY3001 5-001A

Table 2-1-1

(For Mechanism Parts)

STEP/LOC. No.	PART		Fig. No.	REMOVAL *UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	INSTALLATION ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	-
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	-
③	REEL DISK (SUP)	T	M1	(W1), (W2)	-
④	SLANT ARM ASSEMBLY	T	M1	(W1)	-
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	-
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	-
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	-

SECTION 2
MECHANISM ADJUSTMENT

2.1 SERVICE CAUTIONS

2.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. When installing parts, be careful not to do with other parts as well as not to damage others. (Pay the most careful attention to the upper drum assy and tape transport mechanism.)

2.1.2 How to read the disassembly and assembly (For Mechanism Parts)

①: Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

②: Part to be removed or installed.

③: Location of part.
T = Top
B = Bottom

④: Fig. No. showing Procedure or Part Location.
M = Mechanism

⑤: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.

⑥: Adjustment information for installation.
(+) = Refer to Exploded Views for Lubrication information.

2.1.3 Main screws and washers to deal with disassembly/assembly

Table 2-1-1 lists screws and washers by their symbols which correspond to those shown in figures of this section "Disassemby and Assembly".

SYMBOL OF SCREW	SHAPE	PART NUMBER
S1		YQ44457
S2		LY40320-002A
S3		YQ44457-2
S4		SPSN1750Z
S5		YQ44304
S6		YQ44460
S7		LY40320-001A
S8		SPSH1740Z
S9		YQ44457-5
S10		SPSH1730M

SYMBOL OF WASHER	SHAPE	PART NUMBER
W1		PQM30017-27
W2		Q03093-835
W3		PQM30017-25
W4		LY30015-001A

Table 2-1-1

(For Mechanism Parts)

STEP/LOC. No.	PART		Fig. No.	REMOVAL *UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	INSTALLATION ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	-
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	-
③	REEL DISK (SUP)	T	M1	(W1), (W2)	-
④	SLANT ARM ASSEMBLY	T	M1	(W1)	-
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	-
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	-
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	-

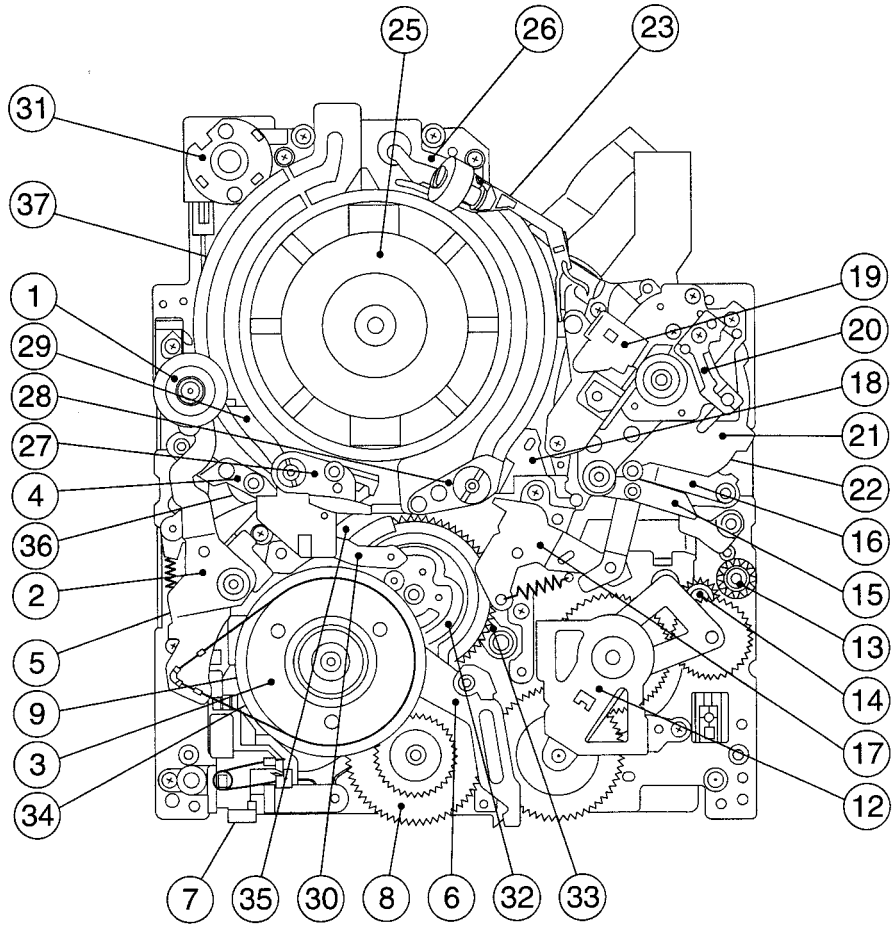
① ② ③ ④ ⑤ ⑥

2.2 DISASSEMBLY/ASSEMBLY OF MECHANISM PARTS

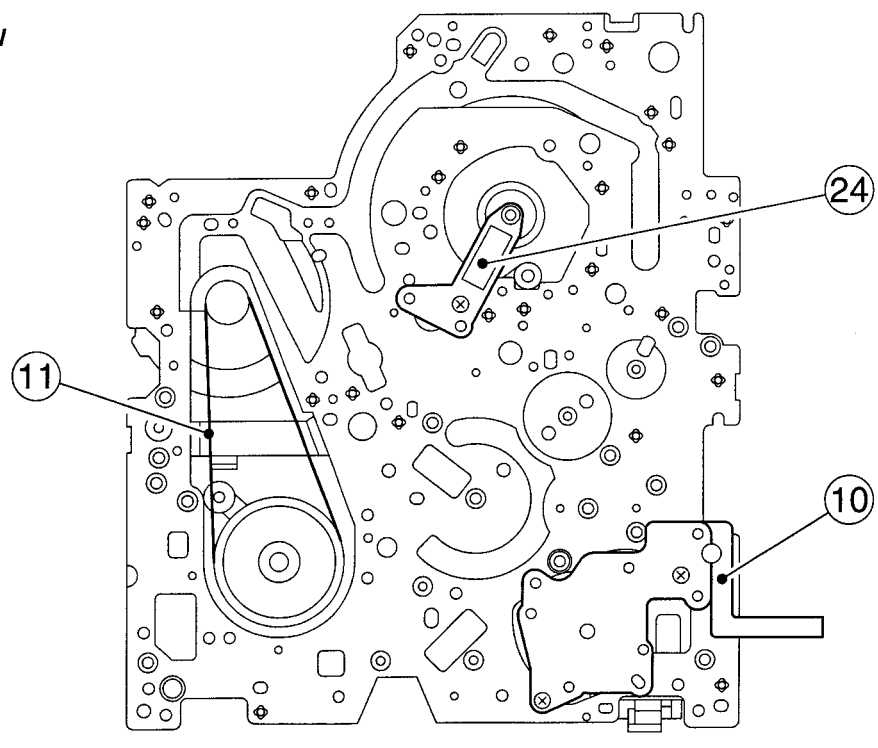
This procedure starts with the condition that the cabinet parts and deck parts. Also, all the following procedures for adjustment and parts replacement should be performed in STOP mode. When reassembling, perform the step(s) in the reverse order.

STEP/LOC. No.	PART		Fig. No.	REMOVAL *UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	INSTALLATION ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	–
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	–
③	REEL DISK (SUP)	T	M1	(W1), (W2)	–
④	SLANT ARM ASSEMBLY	T	M1	(W1)	–
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	–
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	–
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	–
⑧	SUPPLY CLUTCH ASSEMBLY	T	M2	(W1)	–
⑨	WHEEL GEAR	T	M2	(W1)	See, Adjustment procedure for Section 2.3
⑩	ROTARY ENCODER	B	M3	2(S2)	–
⑪	TIMING BELT	B	M3	–	–
⑫	CENTER PULLEY UNIT	T/B	M3	2(S3)	–
⑬	TU GEAR	T	M3	(W1)	–
⑭	BRAKE SUB GEAR	T	M3	(W1)	–
⑮	P.R ARM ASSEMBLY	T	M3	(W3)	–
⑯	TU GUIDE ARM ASSEMBLY	T	M3	(W1)	–
⑰	LINK ARM ASSEMBLY	T	M4	(W3)	–
⑱	LED GUIDE	T	M4	(S1)	–
⑲	A/C HEAD UNIT	T	M4	2(S4)	–
⑳	SLANT POLE BASE ASSEMBLY	T	M5	(S5)	–
㉑	CAP MOTOR ASSEMBLY	T	M5	3(S5)	–
㉒	MOTOR BASE	T	M5	2(S1), (S6)	–
㉓	CLEANER ASSEMBLY	T/B	M5	2(S7), (L1)	
㉔	BRUSH	B	M6	(S7)	–
㉕	DRUM FINAL	T/B	M6	2(S1), (S8), *CATCHER	–
㉖	GUIDE RAIL	T	M6	8(S9)	–
㉗	POLE BASE (SUP)	T	M6	–	–
㉘	POLE BASE (TU)	T	M6	–	–
㉙	COVER PLATE	T	M7	–	–
㉚	DRIVE LEVER ASSEMBLY	T	M7	–	–
㉛	MOTOR BRACKET ASSEMBLY	T	M7	3(S1)	–
㉜	CONTROL CAM	T	M8	(W4)	See, Adjustment procedure for Section 2.3
㉝	LINK LEVER	T	M8	–	–
㉞	MIDDLE GEAR	T	M8	–	–
㉟	LOADING GEAR(T) ASSEMBLY	T	M8	(W1)	See, Adjustment procedure for Section 2.3
㊱	LOADING GEAR(S) ASSEMBLY	T	M8	(W1)	–
㊲	LOADING RING ASSEMBLY	T	M8	4(S1)	See, Adjustment procedure for Section 2.3

TOP VIEW



BOTTOM VIEW



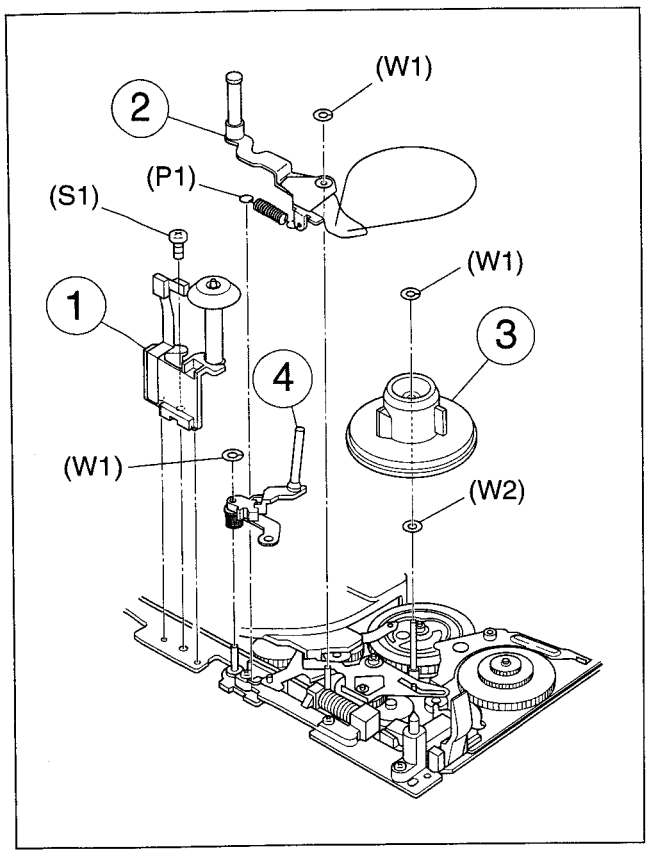


Fig. M1

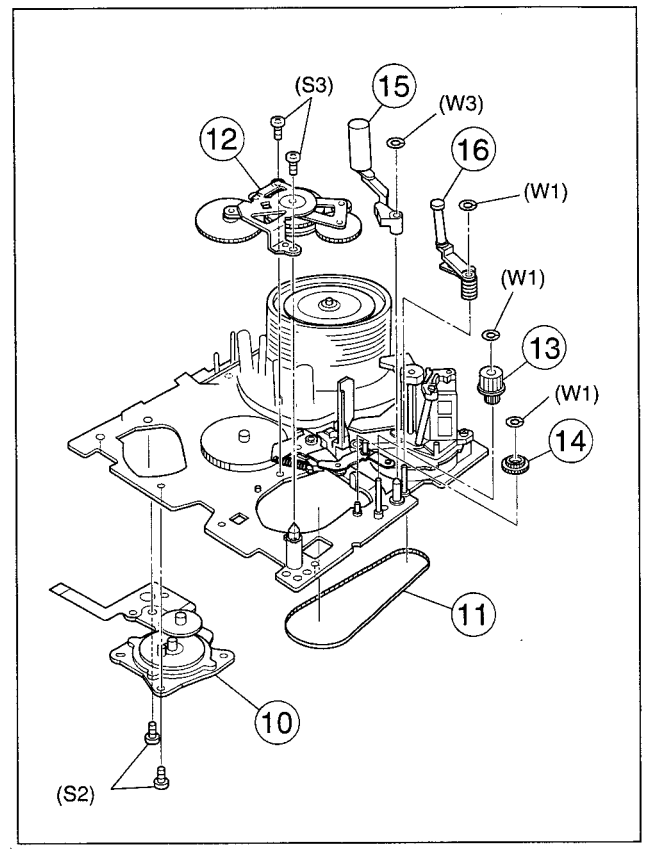


Fig. M3

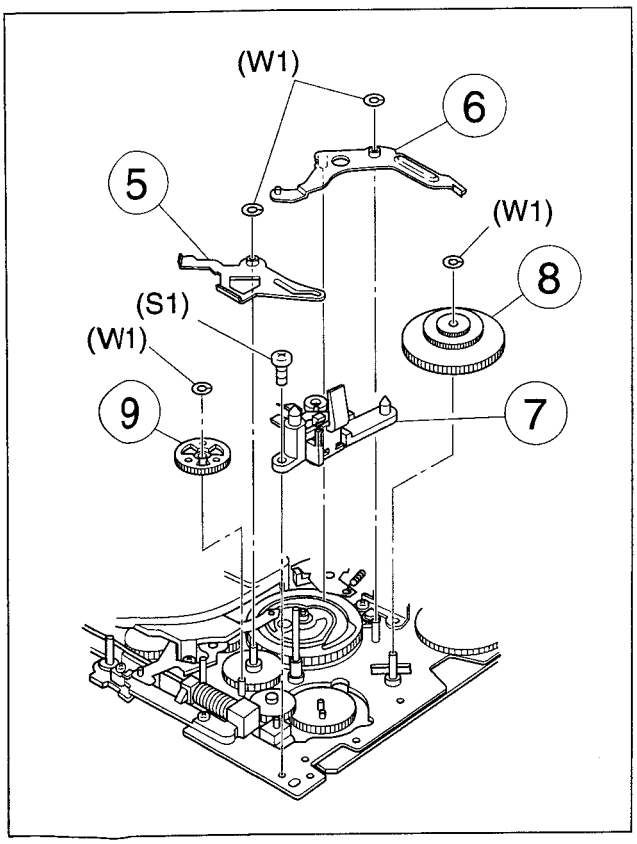


Fig. M2

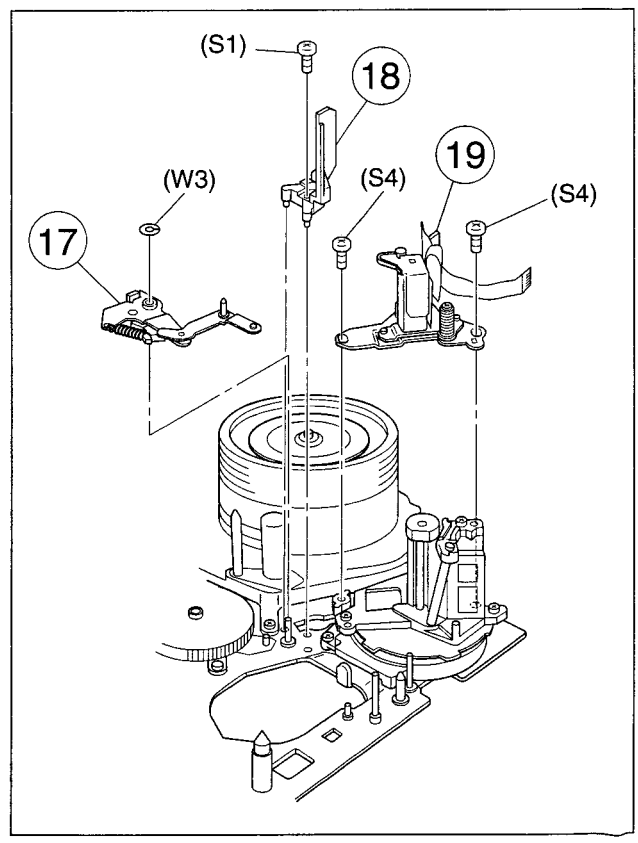


Fig. M4

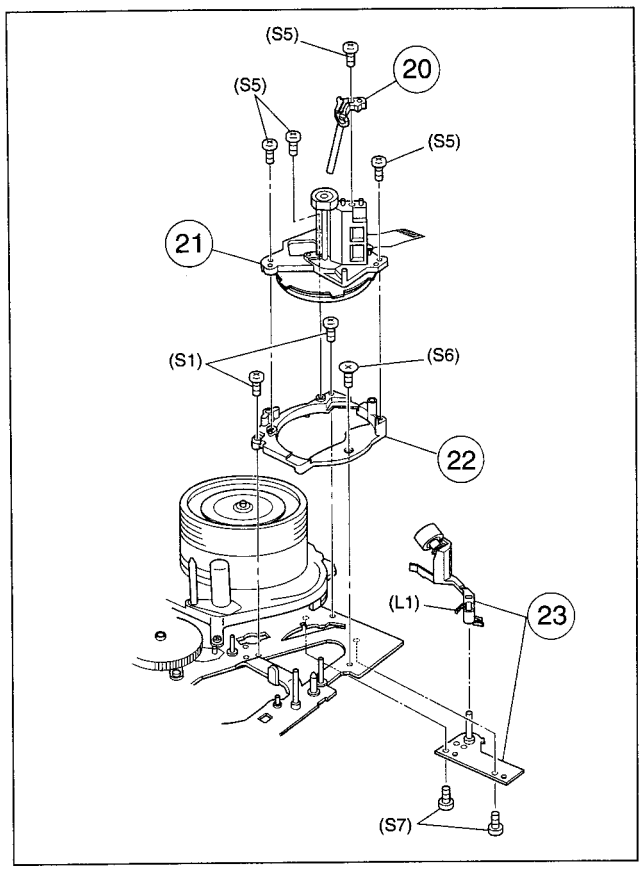


Fig. M5

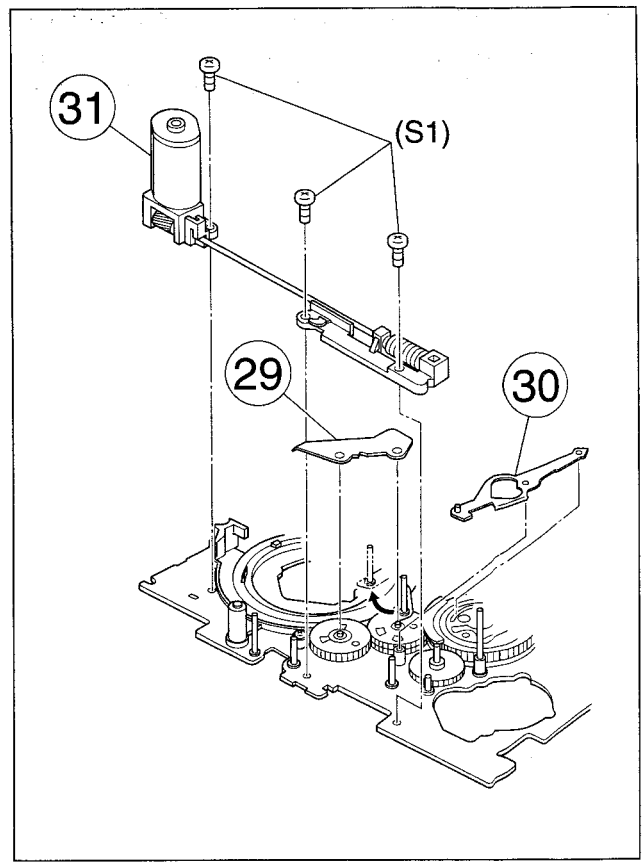


Fig. M7

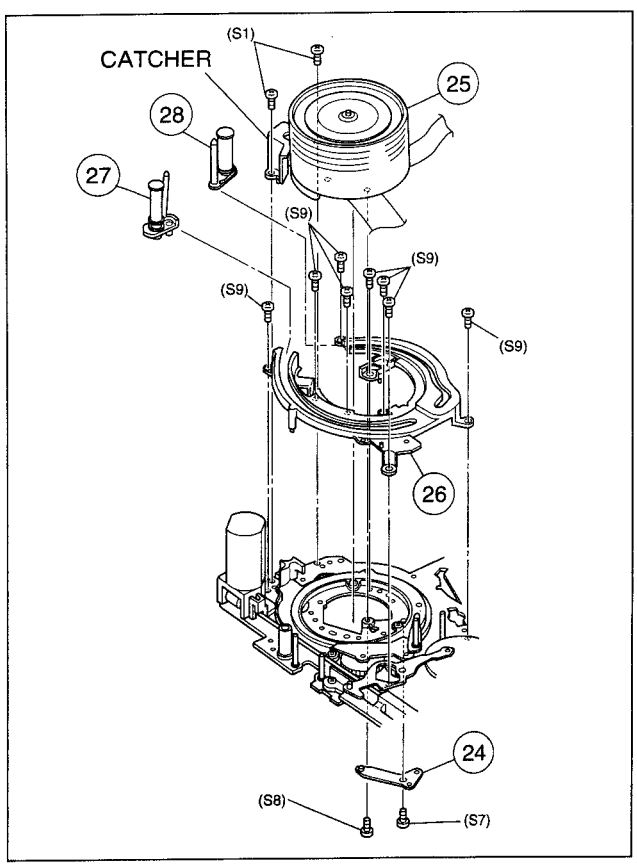


Fig. M6

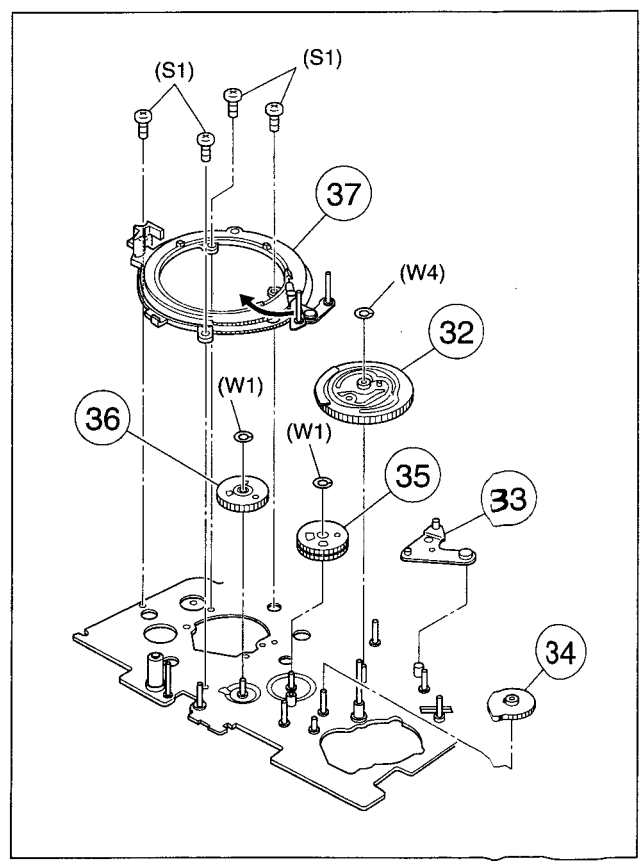


Fig. M8

2.3 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

Note: *Pay careful attention to the installing order and phase of mechanism parts of the loading system.*

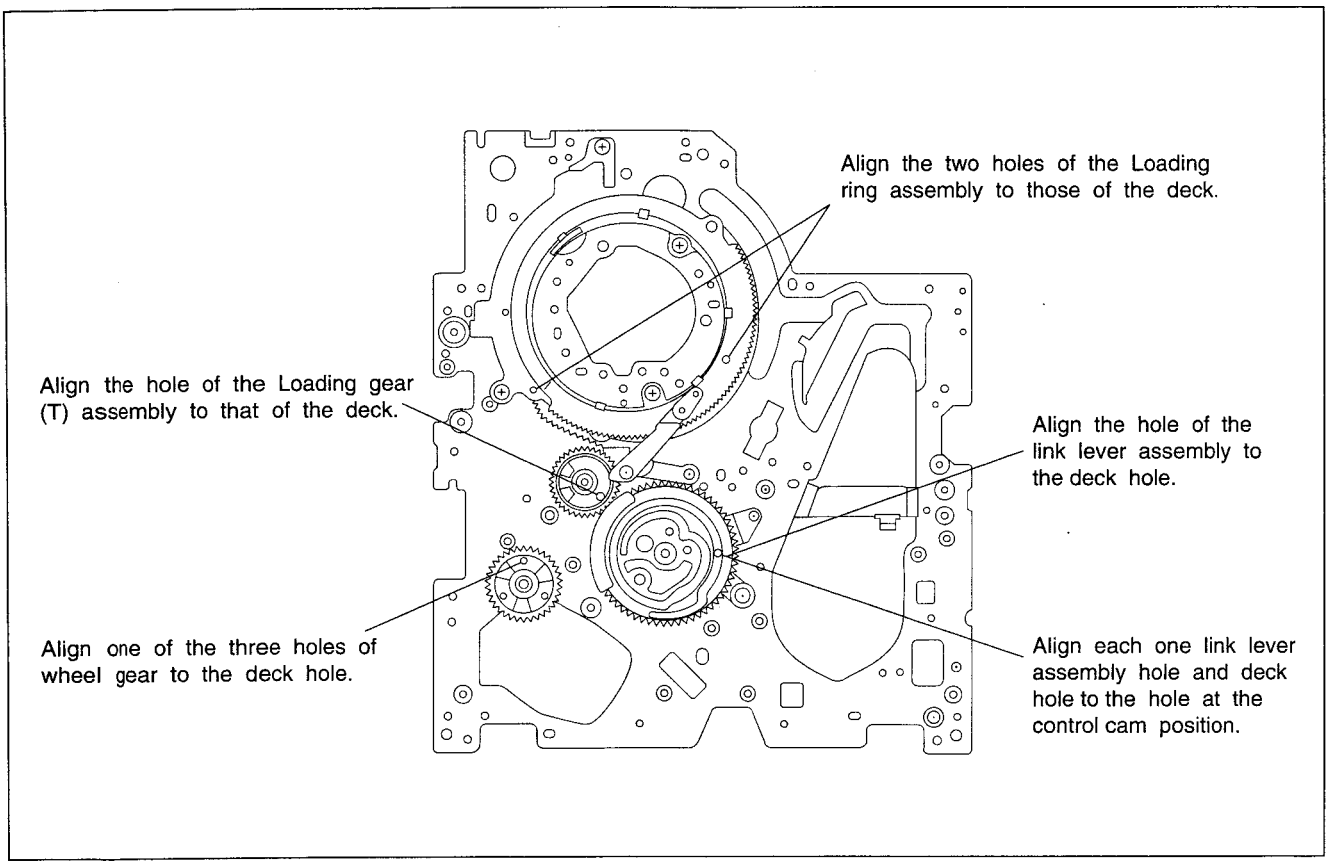

Align the two holes of the Loading ring assembly to those of the deck.
Align the hole of the Loading gear (T) assembly to that of the deck.
Align the hole of the link lever assembly to the deck hole.
Align one of the three holes of wheel gear to the deck hole.
Align each one link lever assembly hole and deck hole to the hole at the control cam position.

Fig. 2-3-1 TOP OF MAIN DECK

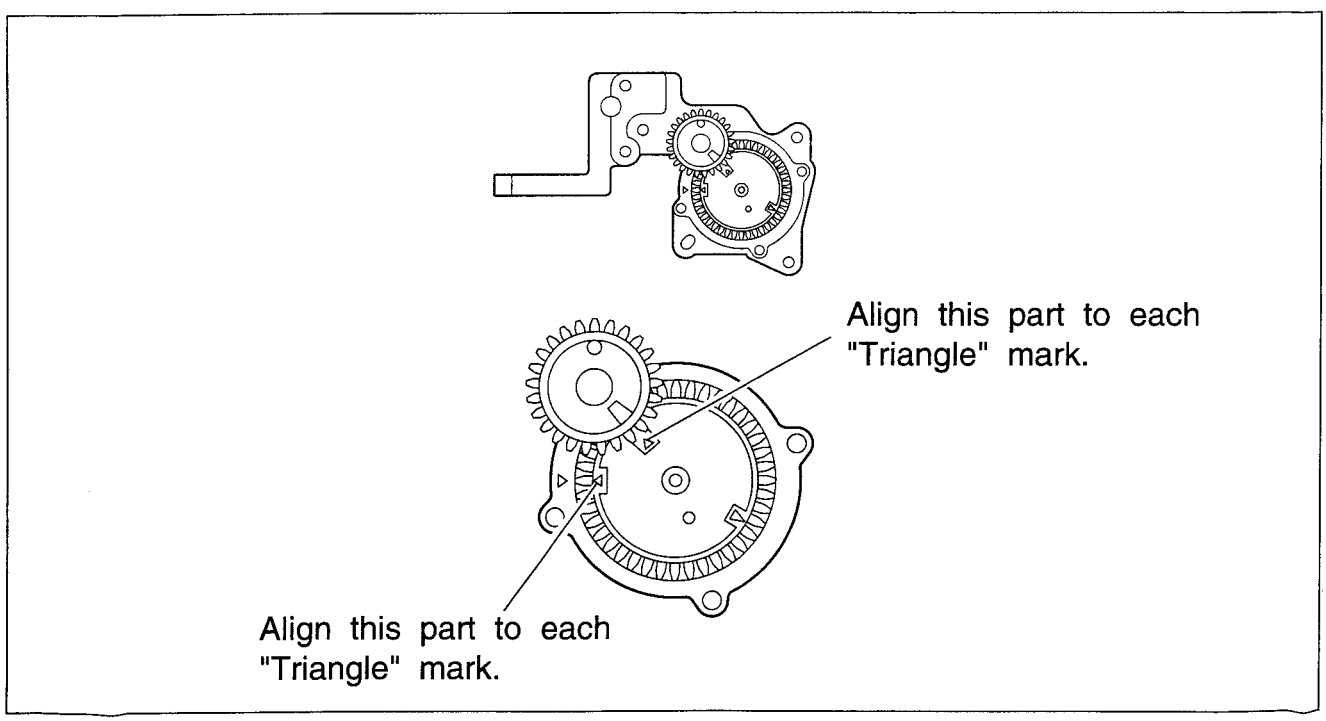


Fig. 2-3-2 ROTARY ENCODER

2.4 TAPE TRANSPORT ADJUSTMENT

In most cases the deck section is in need electrical adjustment, it results from replacement of worm mechanical parts or video heads. In the event of malfunction with electrical circuits, troubleshouting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

2.4.1 Required adjustment tools

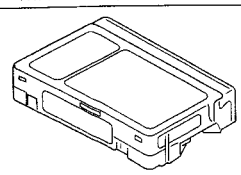
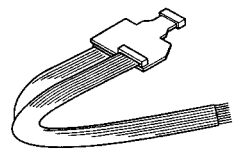
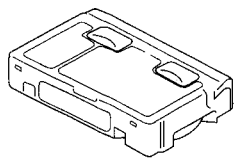
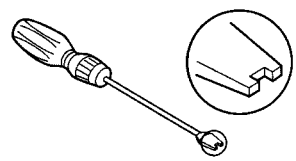
Alignment tape for SP/EP interchangeability MHP-C: SP/MHP-LC: EP	PATCH CORD YTU93082A
	
Cassette torque meter PUJ50431-2	Roller driver PTU94002-2
	

Table 2-4-1

2.4.2 Back tension

1. Set a cassette torque meter onto the deck and measure the back tension in standard REC mode to confirm that the back tension is 9.5 – 17.5 gf•cm.
2. If not, replace the tension band.
   When the value widely fluctuates in the measurement, replace the supply reel disk.
3. With the cassette torque meter, confirm that the play torque is 15 – 25 gf•cm.
   If necessary, replace the center pully unit.

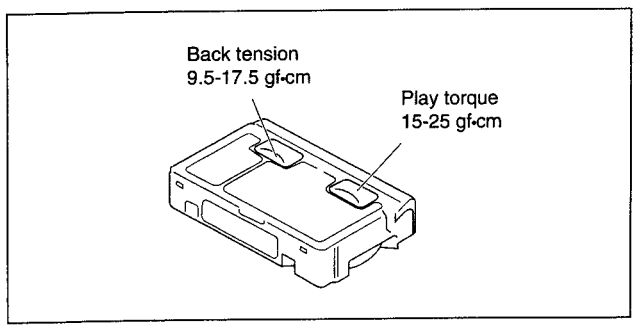


Fig. 2-4-1 Cassette torque meter

2.4.3 Tape pattern

1. Remove the CAP (LITHIUM) and remove the rear cover assembly as shwon on Fig. C2 (Page 1-2).
2. Connect the patch cord (YTU93082A) to CN25 on the MAIN1 board as shwon on Fig. 2-6-1 (Page 2-10).
3. Observe signal at pin 5 of CN1 (V. TP FM) with external trigger from pin 8 of CN1 (V. FF) on the patch cord.
4. Playback the SP stairstep signal of the alignment tape, and maximize the FM waveform by the tracking button.
5. Set the tracking control to the center position by simultaneously pressing the tracking (-) and (+) buttons and maximize the FM waveform by the tracking button.
6. If the observed FM waveform is not flat, adjust the height of the supply of take-up guide roller with the roller driver.

   Note: *To prevent the tape from damage, turn the guide rollers slowly.*

7. By operating the tracking button (both in + and – directions) in the manual tracking mode, vary the output level of the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape.
8. When the FM waveform breaks in the level varying process, subtly adjust the height of guide rollers at every breaking point so that the waveform varies as flat as possible.
   Repeat the above steps 6. and 7. several times to confirm that the waveform is flat as a whole.
9. Play the EP stair stepsignal of alignment tape and adjust the tracking control to maximize the FM waveform, confirm that FM waveform variation is always flat.
10. Record the signal and play it back in both of the SP and EP modes, and confirm that the FM waveform is flat in both modes.

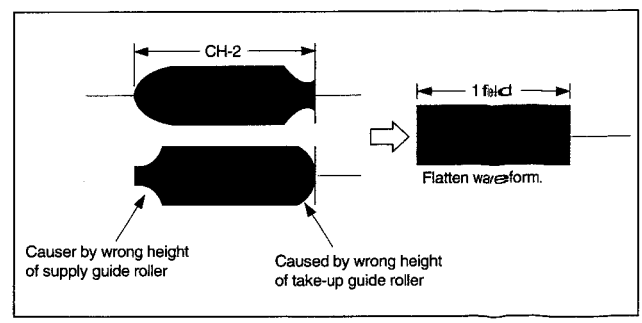


Fig. 2-4-2 FM waveform-1

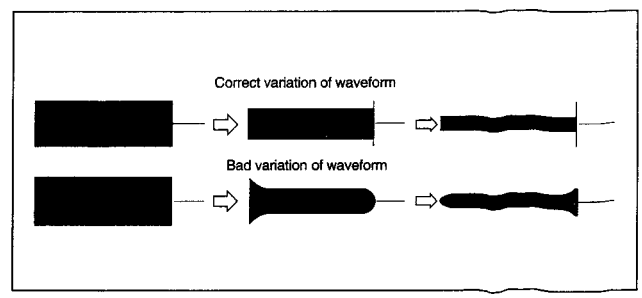


Fig. 2-4-3 FM waveform-2

11. Through the above steps, confirm that there occur no wrinkling and damage in the tape around the pinch roller and TU guide pole whenever the deck is in operation of Loading/Unloading, Search Rewind and at mode change from Search Rewind to play mode. If wrinkling or damage in the tape occurs around the TU guide pole, adjust the angle (slant) of the A/C head to the tape. So that the tape normally runs along the lower flange of the guide pole.

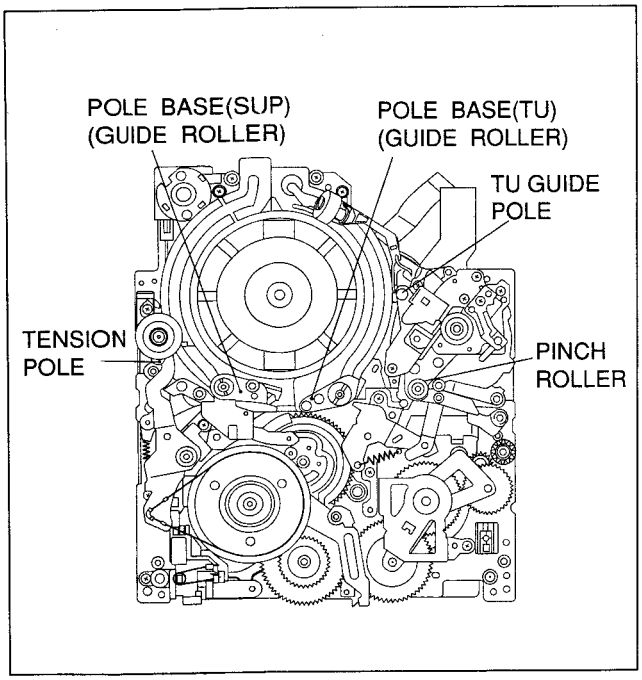


Fig. 2-4-4 Tape transport system

2.4.4 A/CTL head height & azimuth

1. Connect the patch cord (YTU93082A) to CN25 on the MAIN1 board.
2. Connect the channel-1 scope probe to the audio output and connect the channel-2 scope probe to CN1 pin 10 on the patch cord.
3. Playback the SP 7 kHz segment of the alignment tape.
4. Set the tracking to its center range by pressing the (+) and (–) tracking controls simultaneously.
5. Adjust screws Ⓐ, Ⓑ and Ⓒ approximately 45 degrees in the same direction to obtain maximum audio output and CTL signal levels.
6. As a final fine adjustment, adjust screw Ⓑ for minimum signal level fluctuation and screw Ⓒ for maximum output signal level.

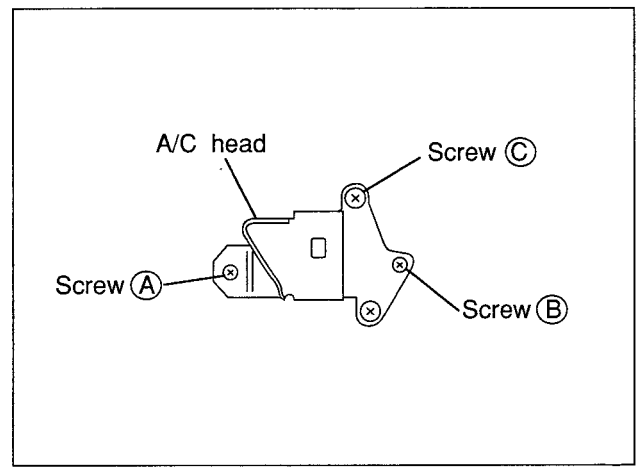


Fig. 2-4-5 A/C head

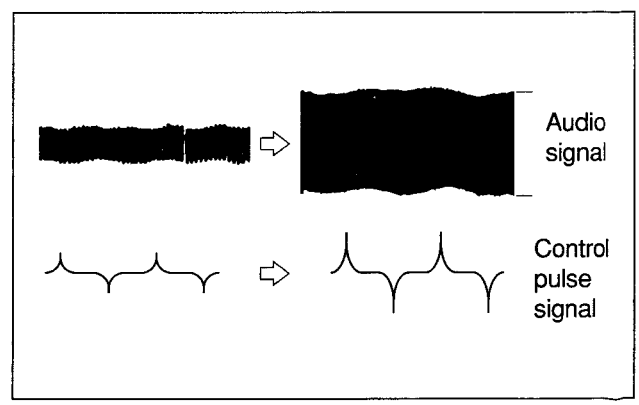


Fig. 2-4-6 Audio and CTL signal

2.4.5 Phase of control head (X value)

1. Connect the patch cord (YTU93082A) to CN25 on the MAIN1 board.
2. Play back the SP stairstep signal of the alignment tape and observe signal at pin 5 of CN1 (V.TP FM) with external trigger from pin 8 of CN1 (V.FF) on the patch cord.
3. Operate the tracking button in the center and manual tracking mode by pressing the tracking (+) and (–) buttons and confirm that the FM output level is maximum at the center position as shown in Fig. 2-4-8.
4. If necessary, slightly loosen the setscrews Ⓓ and Ⓔ and insert the Tweezers into the notch and guide hole to move the A/C head fully in the direction of the capstan to the extent.
5. Gradually move the A/C head toward the drum to find the position where the FM output level maximum for the first time (a' – b' in Fig. 2-4-8).
6. Fine adjust the phase of the A/C head and tighten the screwsⒹ and Ⓔ at the point a.

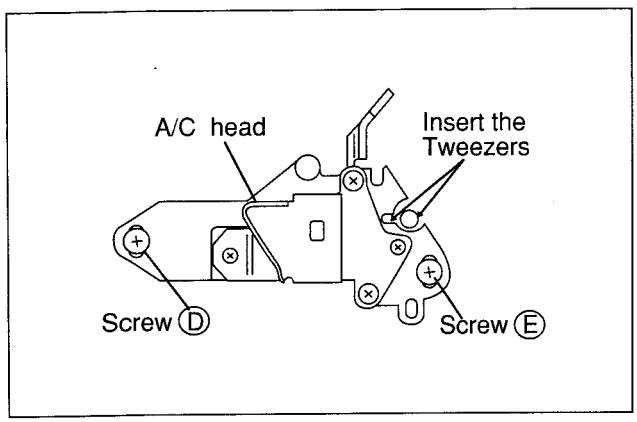


Fig. 2-4-7 Phase of control head

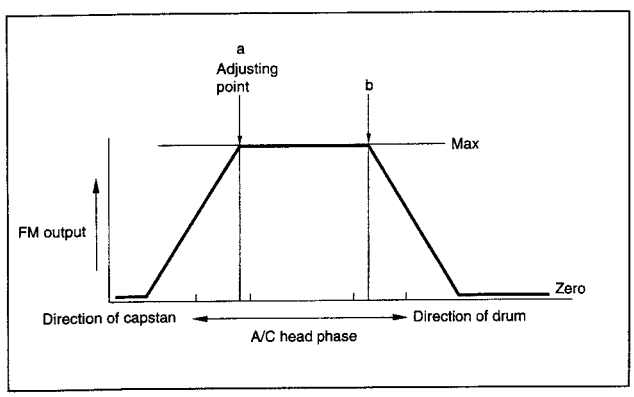


Fig. 2-4-8 Phase adjustment point of control head

2.5 REMARKS

2.5.1 Cleaning

1. For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe with alcohol soaks through. Do not move the cloth but turn the upper drum counterclockwise.

   Note: *Make sure not to move the cloth in the vertical direction to the video head, since it may cause damage of the video heads.*

2. For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.
3. After cleaning, confirm that the cleaned parts are completely dry before loading the deck with cassette tape.

2.5.2 Applying oil and grease

1. Periodical oiling and greasing are not required but should be done to new parts when replacing. If oil and grease on the other parts of the other party are old and dirty, wipe them clean and apply new oil or grease.
2. For parts and points to apply oil and grease, refer to the exploded view of the mechanism assembly (M3). Table 2-5-1 specifies oil and grease to be used.
3. When oiling, clean the objective parts with alcohol first and apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Symbol in drawing
Grease	Grease	AA
Oil	Cosmo Hydro HV100	BB

Table 2-5-1 Specific oil and grease to be used

2.5.3 Checkup

After replacement of the supply reel disk and tension band, make sure to inspect back tension according to the adjustment procedure of MECHANISM ADJUSTMENT section.

2.6 PATCH CORD (YTU93082A) CONNECTION

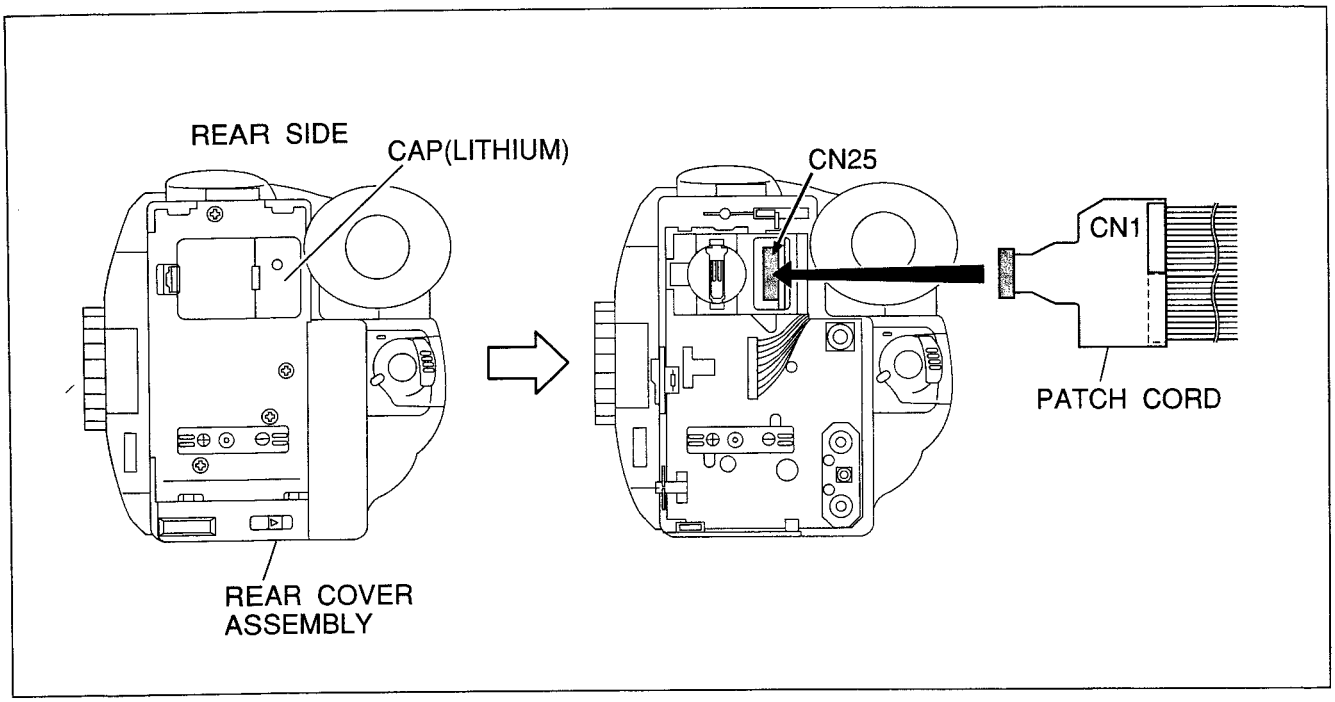


Fig. 2-6-1 PATCH CORD CONNECTION

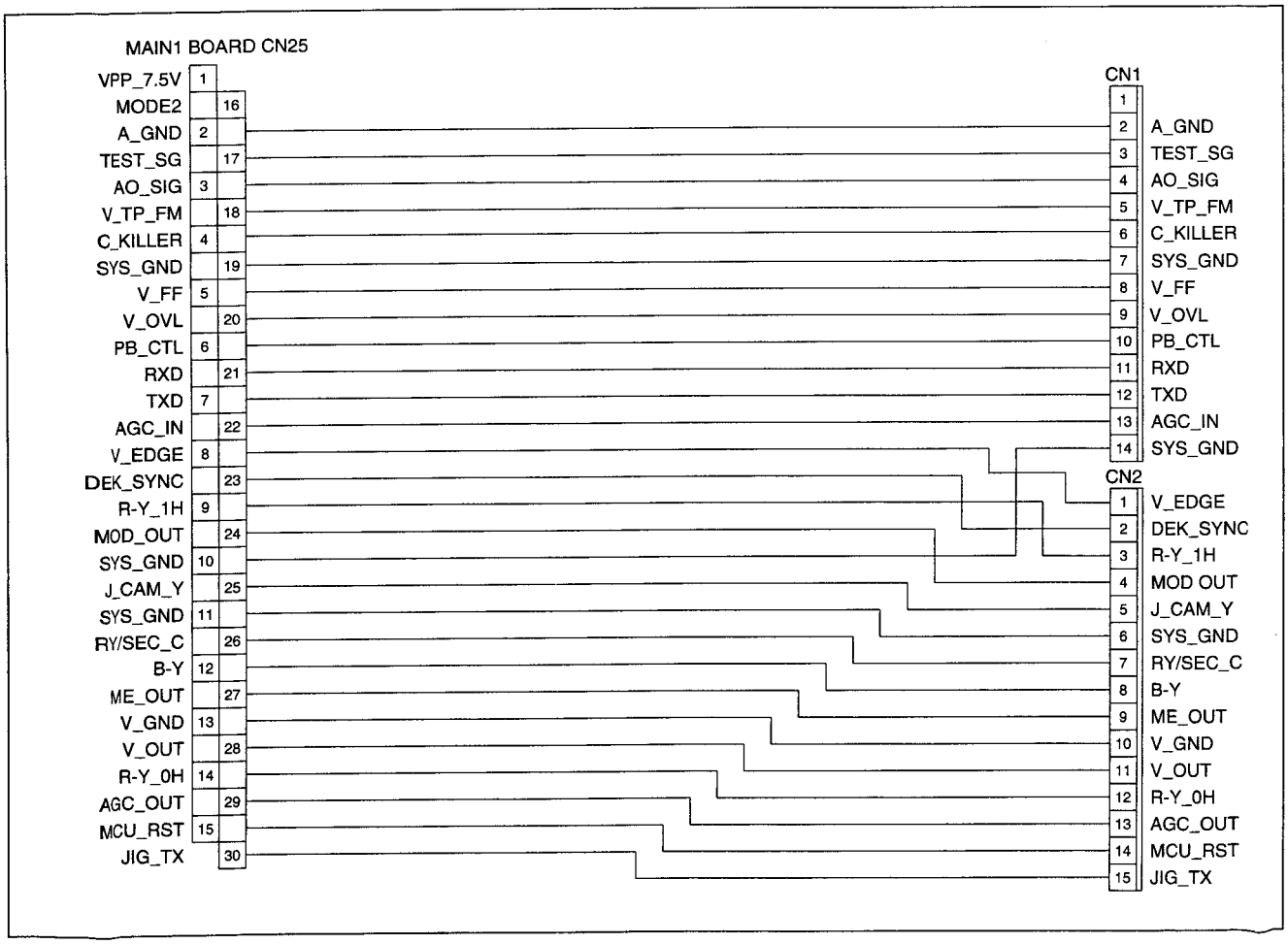


Fig. 2-6-2 PATCH CORD SCHEMATIC DIAGRAM

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 ELECTRICAL ADJUSTMENT

3.1.1 PREPARATION

1. Precaution

This model does not contain adjustment controls (VR). General deck system and camera system adjustment are not required. However, if MAIN1 board need replacement, please use original E²PROM on to new board. Then adjustment are not required. And if parts such as the following need replacement, special computerized adjustment are required (Refer to sec. 3.1.1-5). Please contact to JVC service for detaile information.

- OP block
- COLOR E.VF
- E²PROM (IC105 of MAIN1 board)

In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

1. In case of wiring to chip test points for measurement, use IC clips, etc. to avoid any stress.
2. Since connectors are fragile, carefully handle them in disconnecting and connecting.
3. Shortcircuit between operation un it and DECK chassis.

2. Required test equipment

1. Color TV monitor.
2. AC power adapter (AA-V15 and AA-V11 or equivalent).
3. Oscilloscope (dual-trace type, for more than 20 MHz).
4. Digital voltmeter
5. Frequency counter (with threshold level adjuster)
6. Personal computer

3. Required adjustment tools

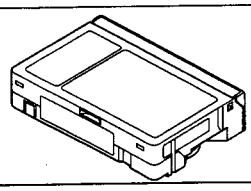
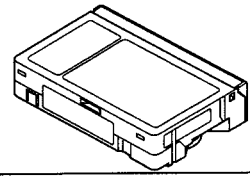
Alignment tape (for SP interchangeability) MHP-C	Alignment tape (for N. SP PB Y/C level) MHV-2C
	

Table 3-1-1 Required adjustment tools

4. Setup for E. VF section adjustment

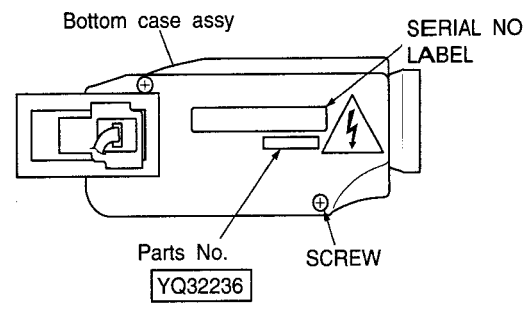
1) B/W E.VF (for AX230)

Referring to "SEC. 1 DISASSEMBLY" and connect the E.VF FPC to CN12 of the MAIN1 board.

Note:

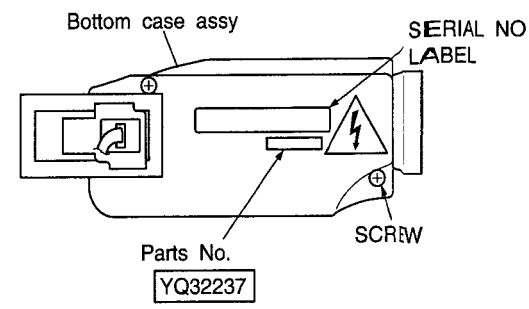
- *There are two types of E. VFs for this model.*
- *The adjustment procedure of them are different. For performing the adjustment, please follow the item mentioned on the figure below.*

<TYPE M> (YQ32236)



Adjustment Item : 3.2

<TYPE T> (YQ32237)



Adjustment Item : 3.3

2) COLOR E.VF (FOR AX430/AX730)

Referring to "SEC. 1 DISASSEMBLY" and connect the E.VF FPC to CN12 of the MAIN1 board.

Note:

- *This adjustment falls into a special adjustment that requires a personal computer.*
  For details, refer to "3.1.1 Preparation".

5. Required adjustment tools for Service support system

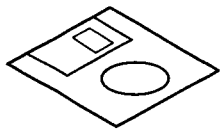
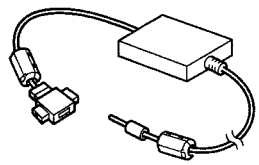
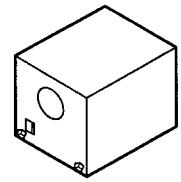
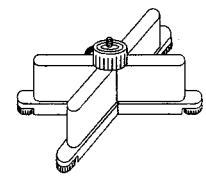
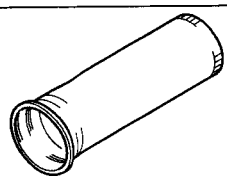
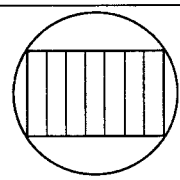
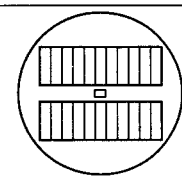
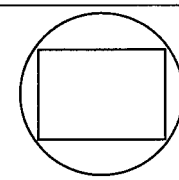
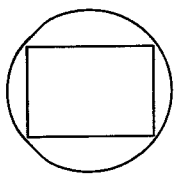
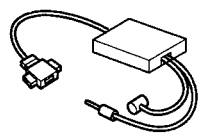
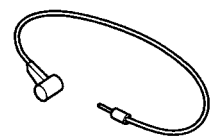
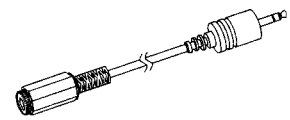
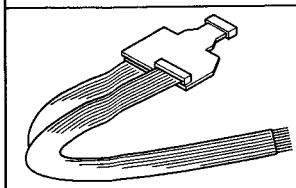
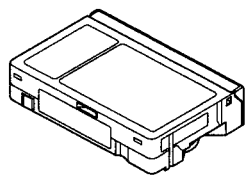
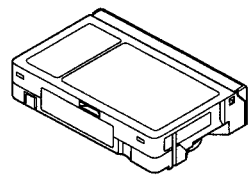
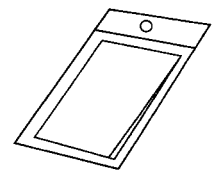
service suport system software YTU94057-28	PC cable QAM0099-001	Light box YTU93072A-1	Camera stand YTU93079
			
Infinity adjustment lens YTU92001B	Color bar chart YTU92001-051	Gray scale chart YTU92001-052	White balance chart YTU92001-053
			
Skintone chart YTU92001-054	Interface cable YTU93063	Adapter cable YTU94066	JLIP conversion cable YTU94084A
			
Patch cord YTU93082A	Alignment tape (for SP Interchangeability) MHP-C	Alignment tape (for N. SP PB Y/C level) MHV-2C	Cleaning cloth KSMM-01
			

Table 3-1-2 Required adjustment tools for Service support system

6. Connections for Service support system

<TYPE I>

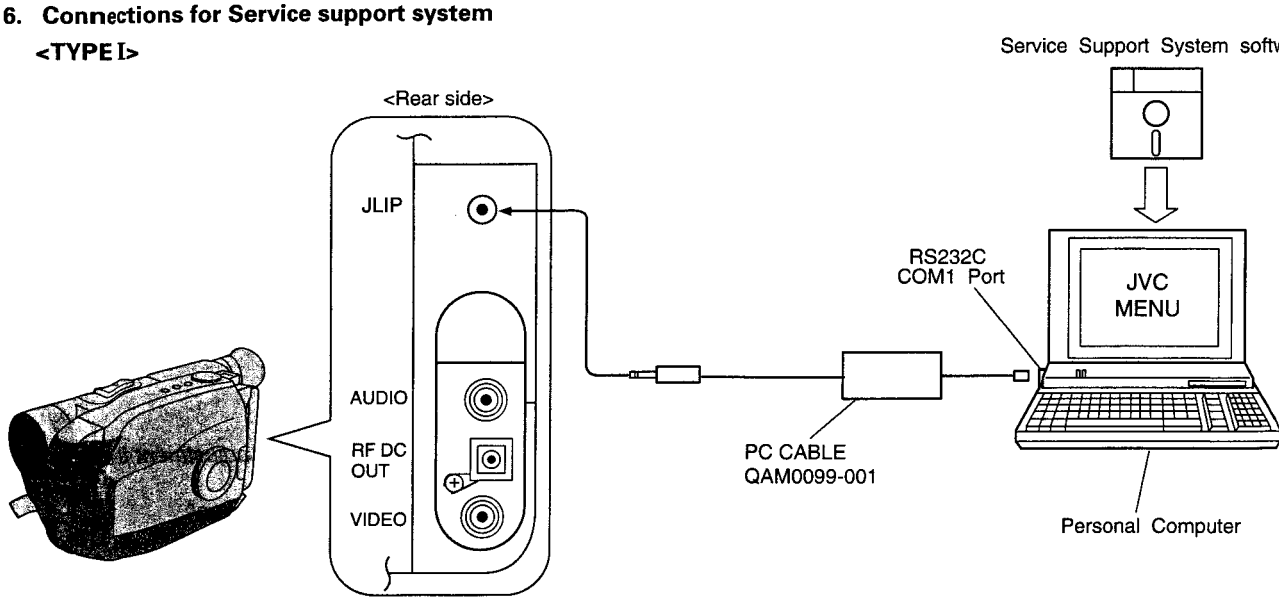


Fig. 3-1-1 Connection for Service support system (TYPE I)

<TYPE II>

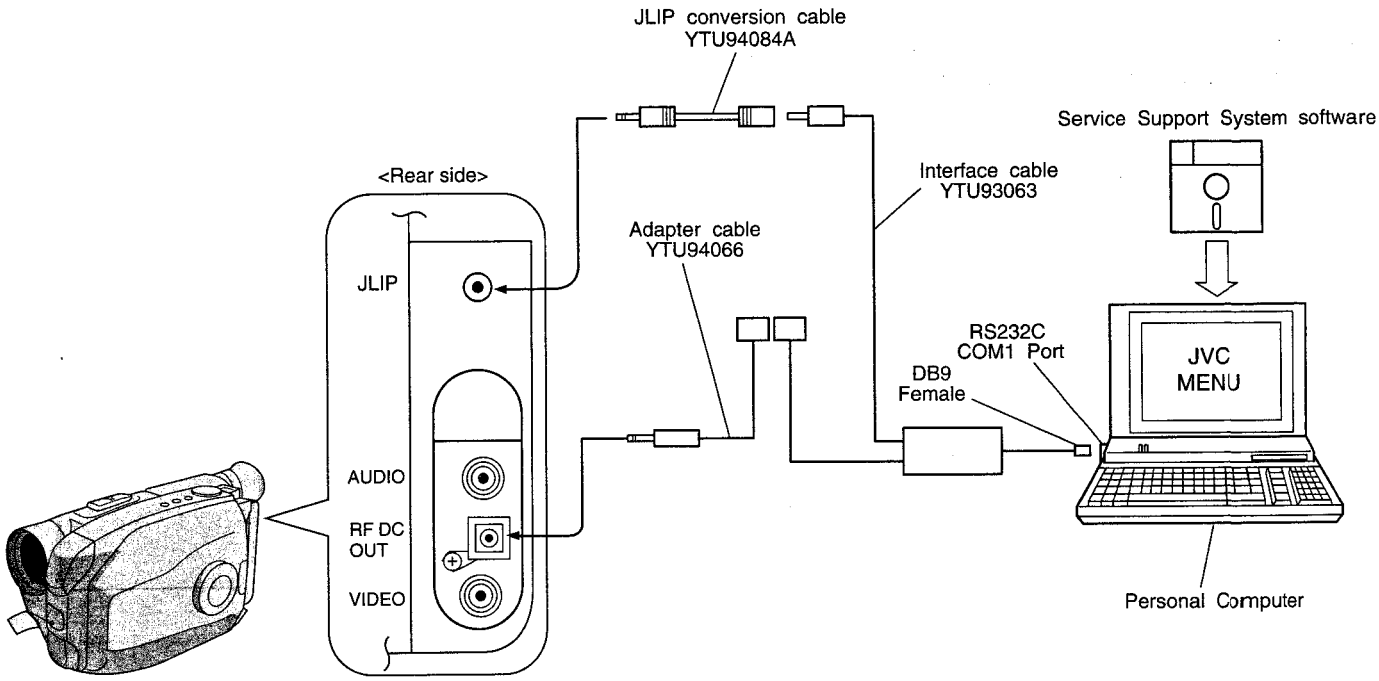
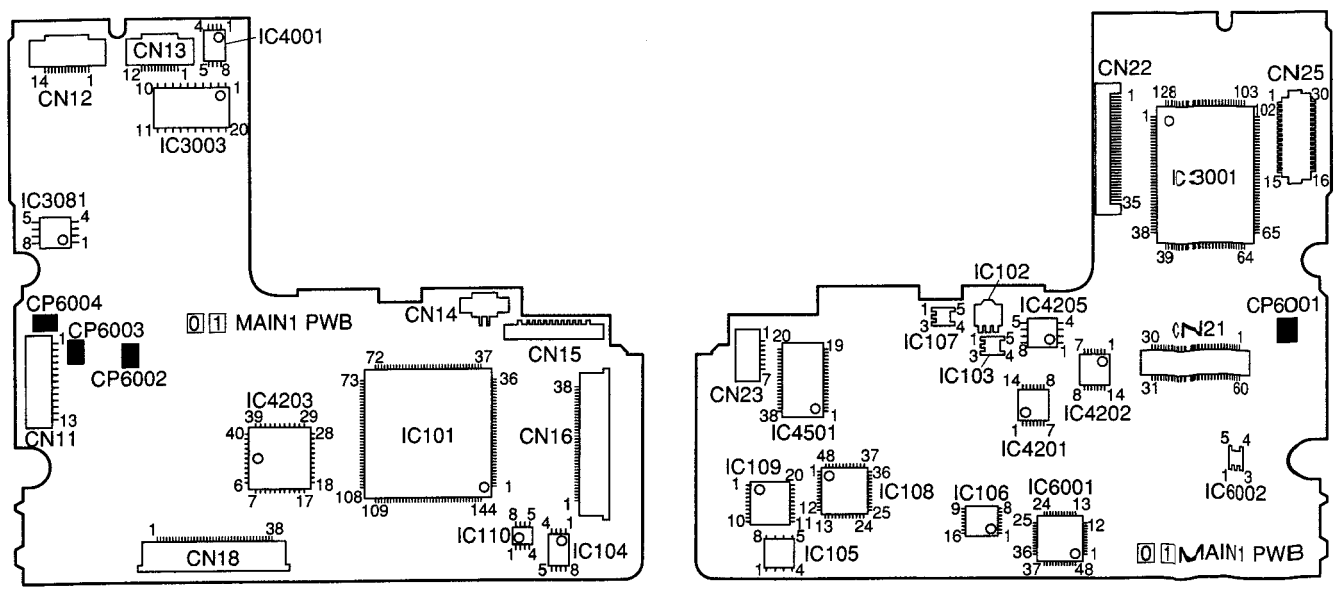


Fig. 3-1-2 Connection for Service support system (TYPE II)

■ CIRCUIT PROTECTOR LOCATION FOR MAIN1



–COMPONENT SIDE– **–FOIL SIDE–**

Fig. 3-1-3 Circuit protector location for MAIN board assembly

3.2 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT <TYPE M>

Notes: *Unless otherwise specified, all measurement points and adjustment parts are located on E. VF board.*

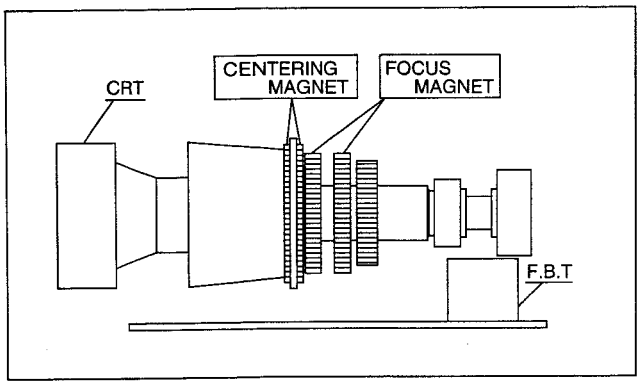


Fig. 3-2-1 E. VF

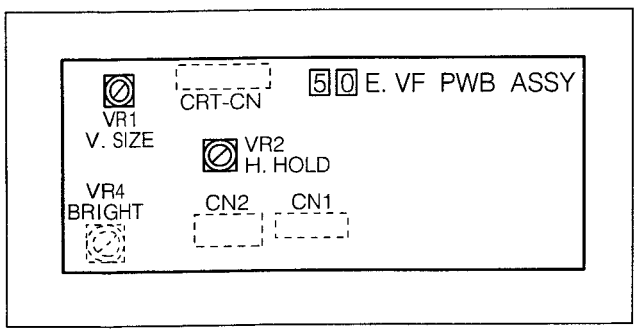


Fig. 3-2-2 E. VF board

3.2.1 Horizontal sync.

Subject	• Alignment tape [MHP-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR2 (H. HOLD)
Specification	• The midpoint of the two markings

1) Observing the viewfinder screen, turn VR2 fully clockwise to make the picture unstable.
2) Slowly return VR2 counterclockwise to find a point where the picture becomes stable, and mark this position.
3) Turn VR2 fully counterclockwise to make the picture unstable in the same manner as 1) above.
4) Slowly return VR2 clockwise until the picture becomes stable, and mark this position.
5) Finally set VR2 to the midpoint between the two markings of 2) and 4).

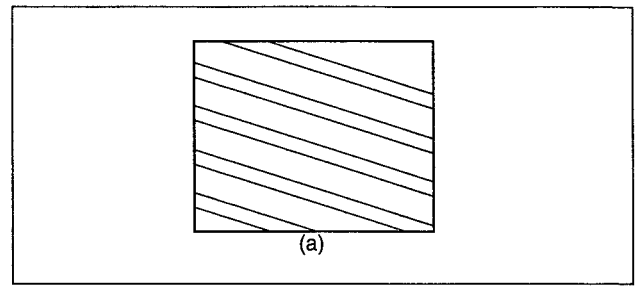


Fig. 3-2-3 Horizontal sync. 1

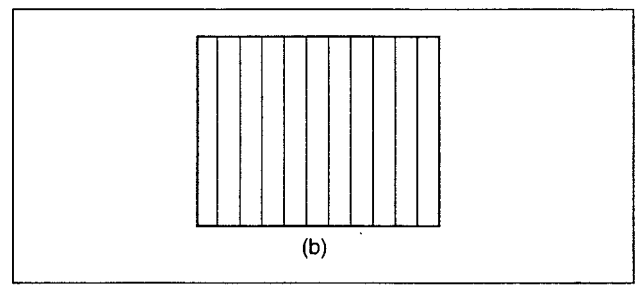


Fig. 3-2-4 Horizontal sync. 2

3.2.2 PLL adjustment

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR1 (V. SIZE)
Specification	• Normal picture amplitude

1) Observing the viewfinder screen, adjust VR1 for normal picture amplitude.

3.2.3 Centering

Subject	• Alignment tape [MHP-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Centering magnet (CRT assy)
Specification	• The center of the E. VF screen

1) While observing the viewfinder screen, adjust the centering magnet to locate the stairstep in the center of the viewfinder screen.

3.2.4 Focus

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurment point	• E. VF screen
Adjustment part	• Focus magnet (CRT assy)
Specification	• The center area is clear and defined

1) While observing the viewfinder screen, adjust the focus magnet for the deflecting yoke so that the picture at the central area of the screen is clear and defined.

3.2.5 Brightness

Subject	• -
Mode	• EE • Lens closed
Equipment	• E. VF
Measurment point	• E. VF screen
Adjustment part	• VR4 (BRIGHT)
Specification	• The CRT raster is just barely visible

1) Close the lens with the cap and adjust VR4 so that the raster of the CRT is just visible in the E. VF.

3.3 ELECTRONIC VIEWFINDER (E. VF) ADJUSTMENT <TYPE T>

Notes:

- *Unless otherwise specified, all measurement points and adjustment parts are located on E. VF board.*
- *After adjustment or replacement of the deflection yoke or the centering magnet, fix it by the band as shown the figure below.*

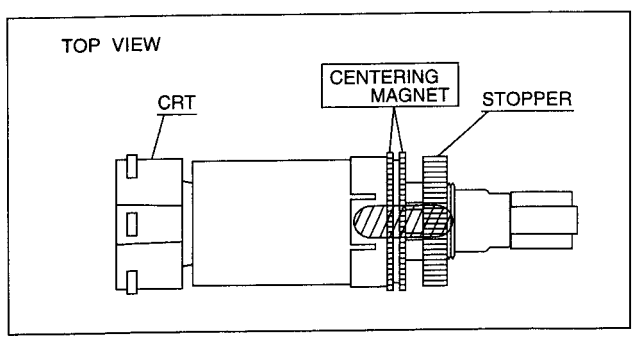


Fig. 3-3-1 E. VF

- *After adjustment is completed, compare the picture on the E. VF screen with the monitor TV.*

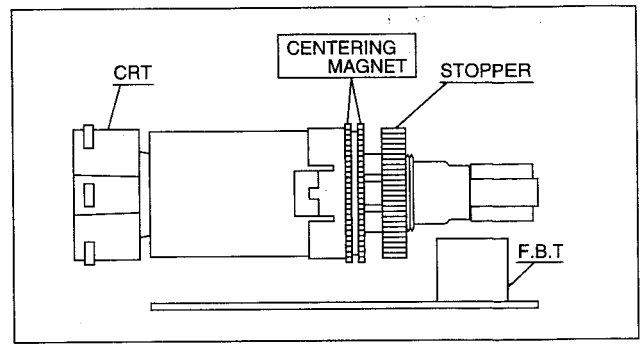


Fig. 3-3-2 E. VF

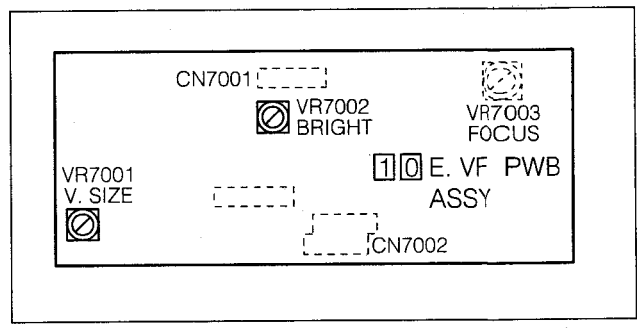


Fig. 3-3-3 E. VF board

3.3.1 Tilt

Subject	• Alignment tape [MHP-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Deflection yoke
Specification	• The picture is visible as same as monitor TV.

1) Put the deflection yoke to the most inner side of CRT neck first. Then fix the stopper temporary.
2) Adjust the tilt of picture on the E. VF screen by tilting the deflection yoke.
3) Fix the stopper completely.

3.3.2 Centering

Subject	• Alignment tape [MHP-C] • Stairstep
Mode	• PB
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• Centering magnet (CRT assy)
Specification	• The center of the E VF screen

1) While observing the viewfinder screen, adjust the centering magnet to locate the stairstep in the center of the viewfinder screen.

3.3.3 Vertical scanning

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7001 (V. SIZE)
Specification	• Normal picture amplitude

1) Observing the viewfinder screen, adjust VR7001 for normal picture amplitude.

3.3.4 Brightness

Subject	• –
Mode	• EE • Lens closed
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7002 (BRIGHT)
Specification	• The CRT raster is just barely visible

1) Close the lens with the cap and adjust VR7002 so that the raster of the CRT is just visible in the E. VF.

3.3.5 Focus

Subject	• Camera picture
Mode	• EE
Equipment	• E. VF
Measurement point	• E. VF screen
Adjusting part	• VR7003 (FOCUS)
Specification	• The center area is clear and defined

1) While observing the viewfinder screen, adjust VR7003 so that the picture at the central area of the screen is clear and defined.

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

Unless otherwise specified.

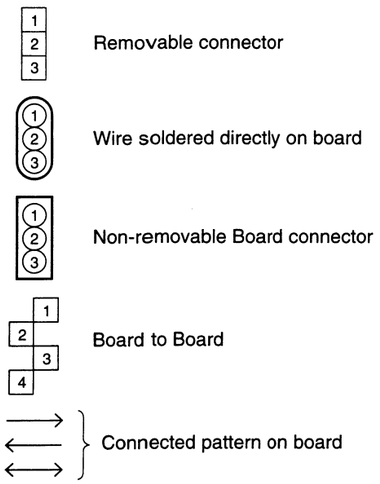
1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values are in μH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

2. Indications of control voltage

AUX : Active only at high

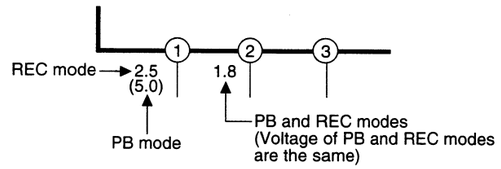
$\overline{AUX}$ or AUX(L) : Active at low

3. Interpreting Connector indications



4. Voltage measurement

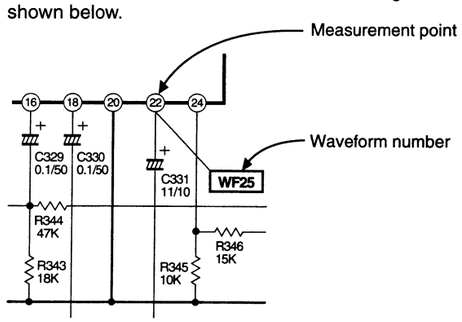
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.



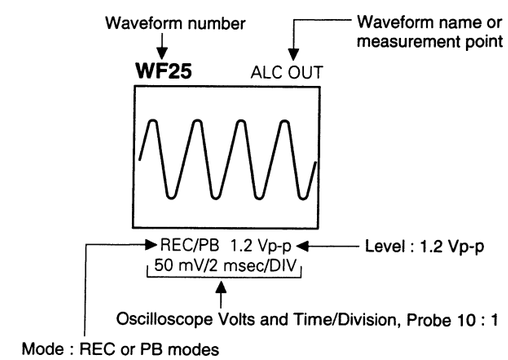
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.

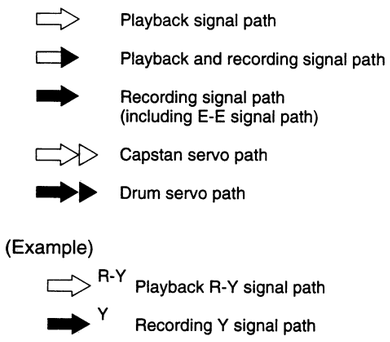


5) Waveform indications



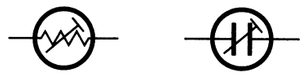
6. Signal path Symbols

The arrows indicate the signal path as follows.



7. Indication of the parts for adjustments

The parts for the adjustments are surrounded with the circle as shown below.



8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.

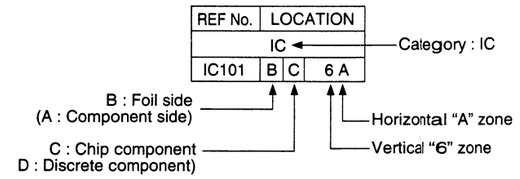
CIRCUIT BOARD NOTES

1. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) indicated.

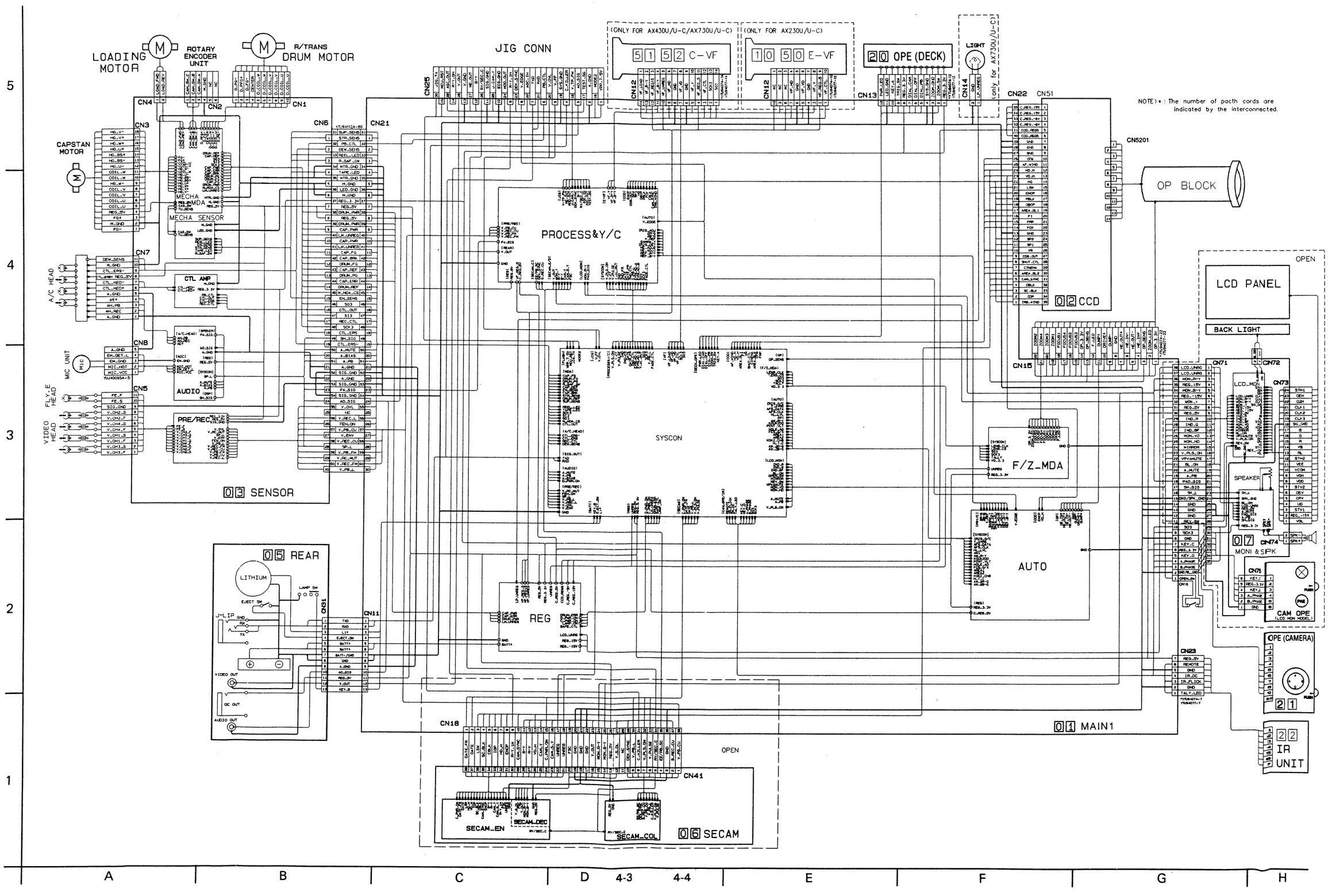
2. Parts location guides

Parts location are indicated by guide scale on the circuit board.



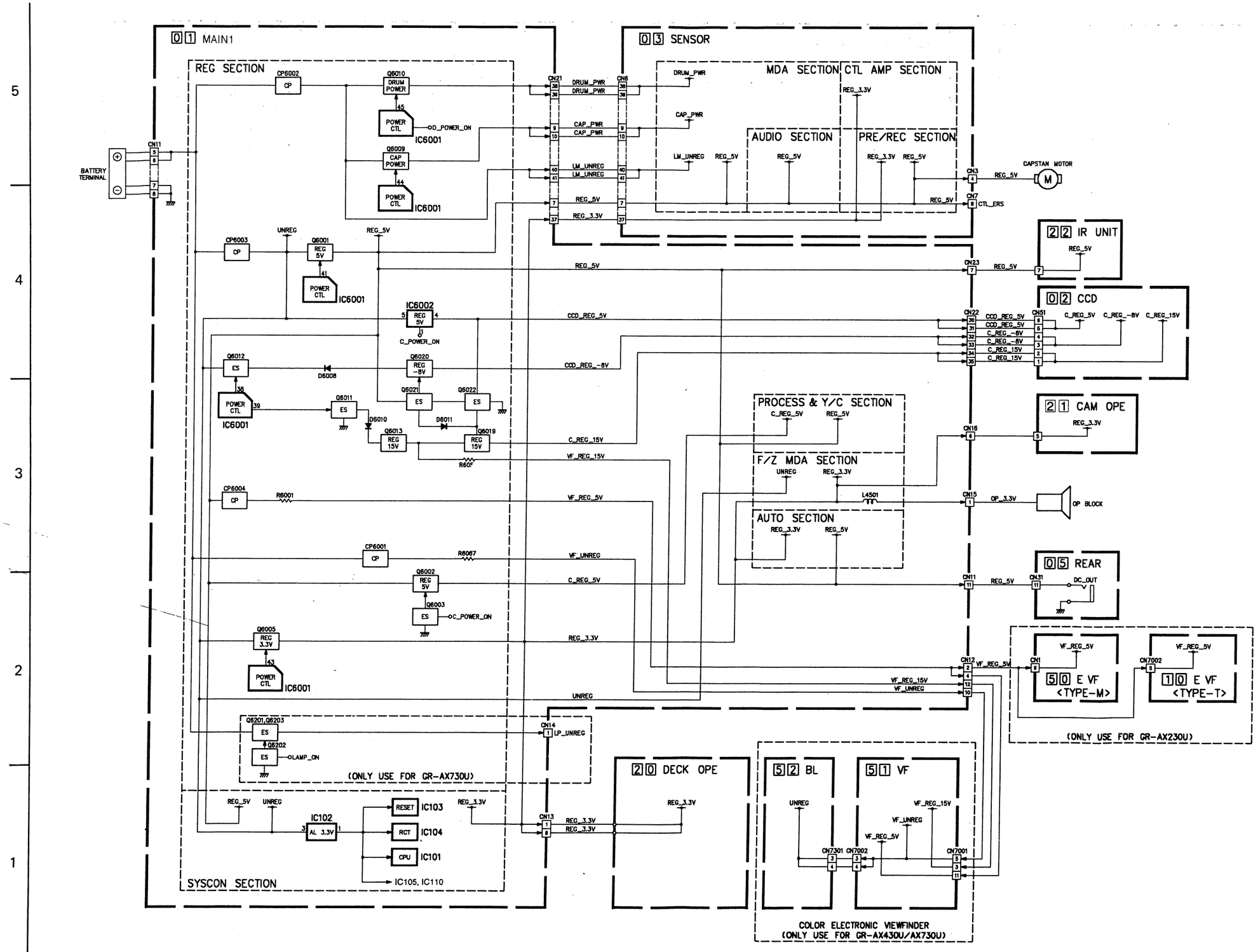
Note:
For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS

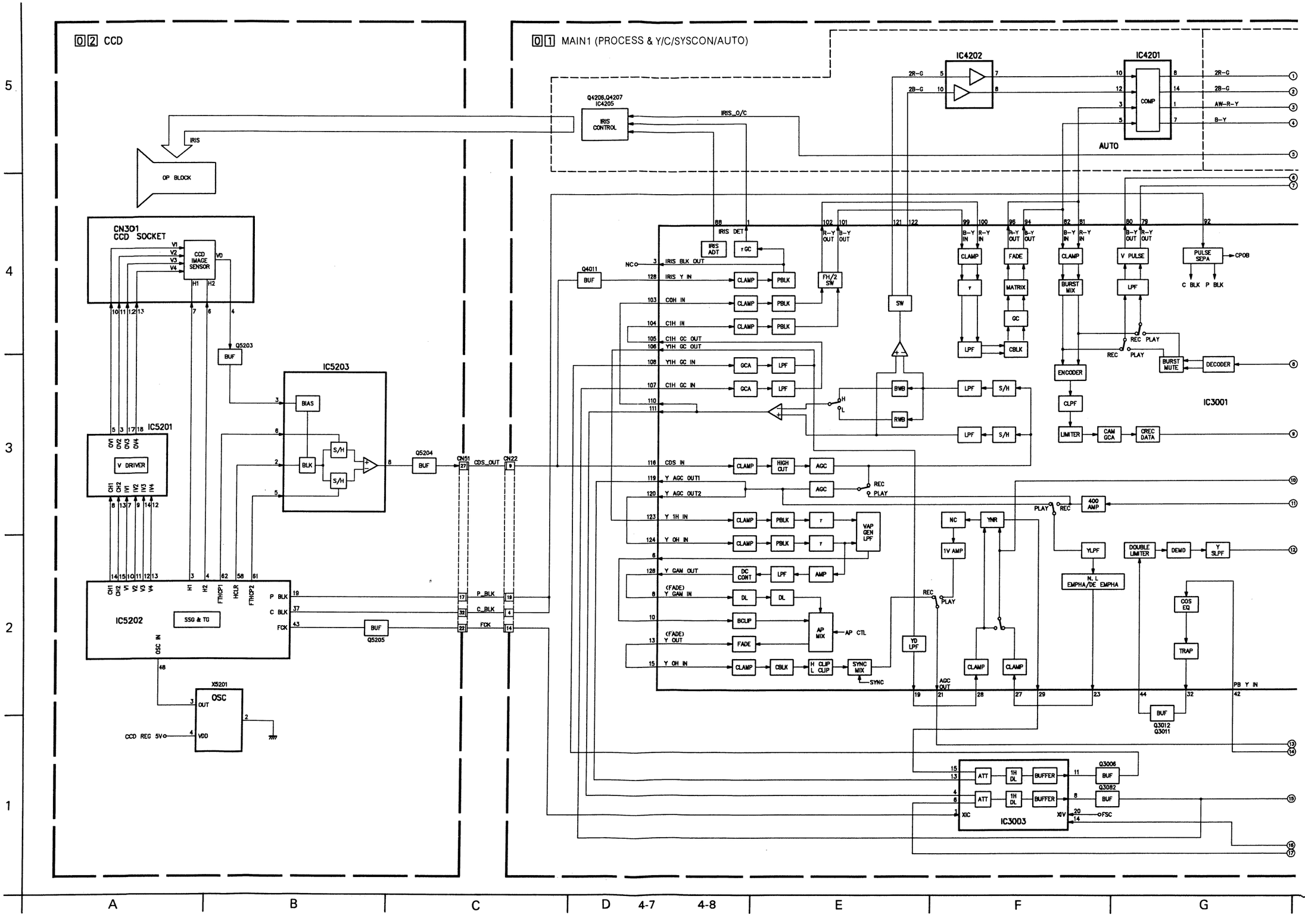


A B C D 4-3 4-4 E F G H

4.2 POWER SYSTEM BLOCK DIAGRAM

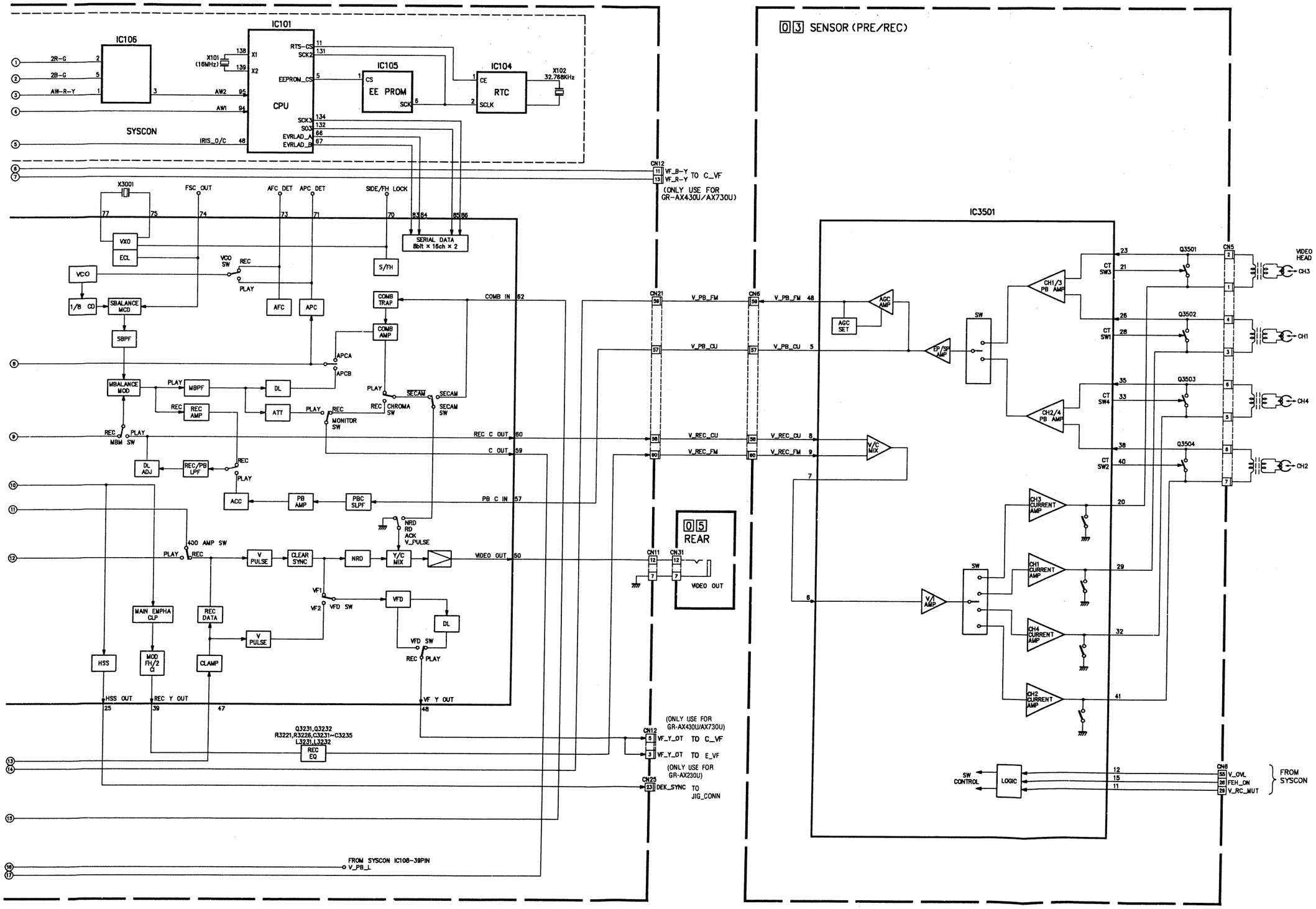


4.3 PROCESS AND Y/C BLOCK DIAGRAM



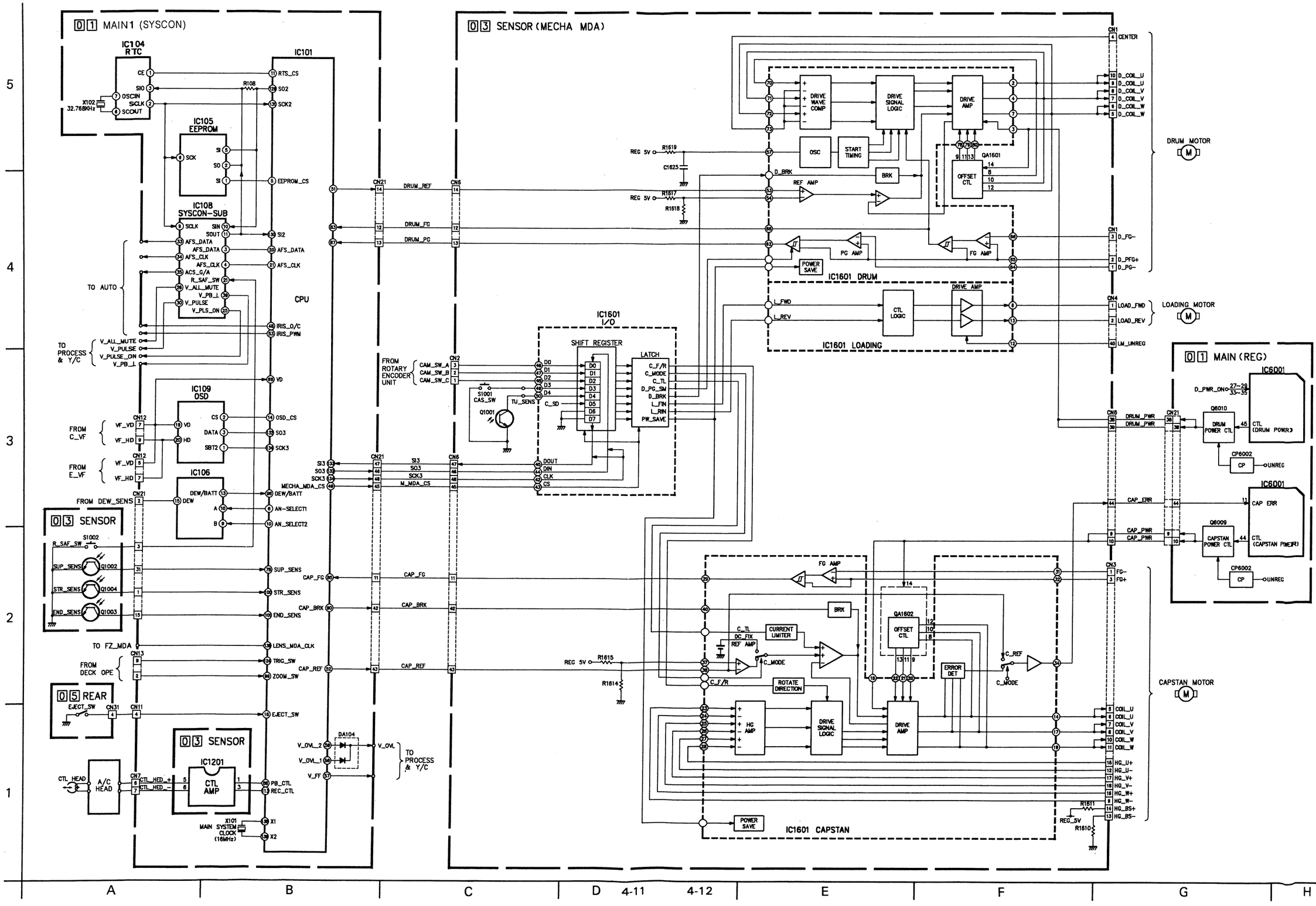
A B C D E F G H

4-7 4-8

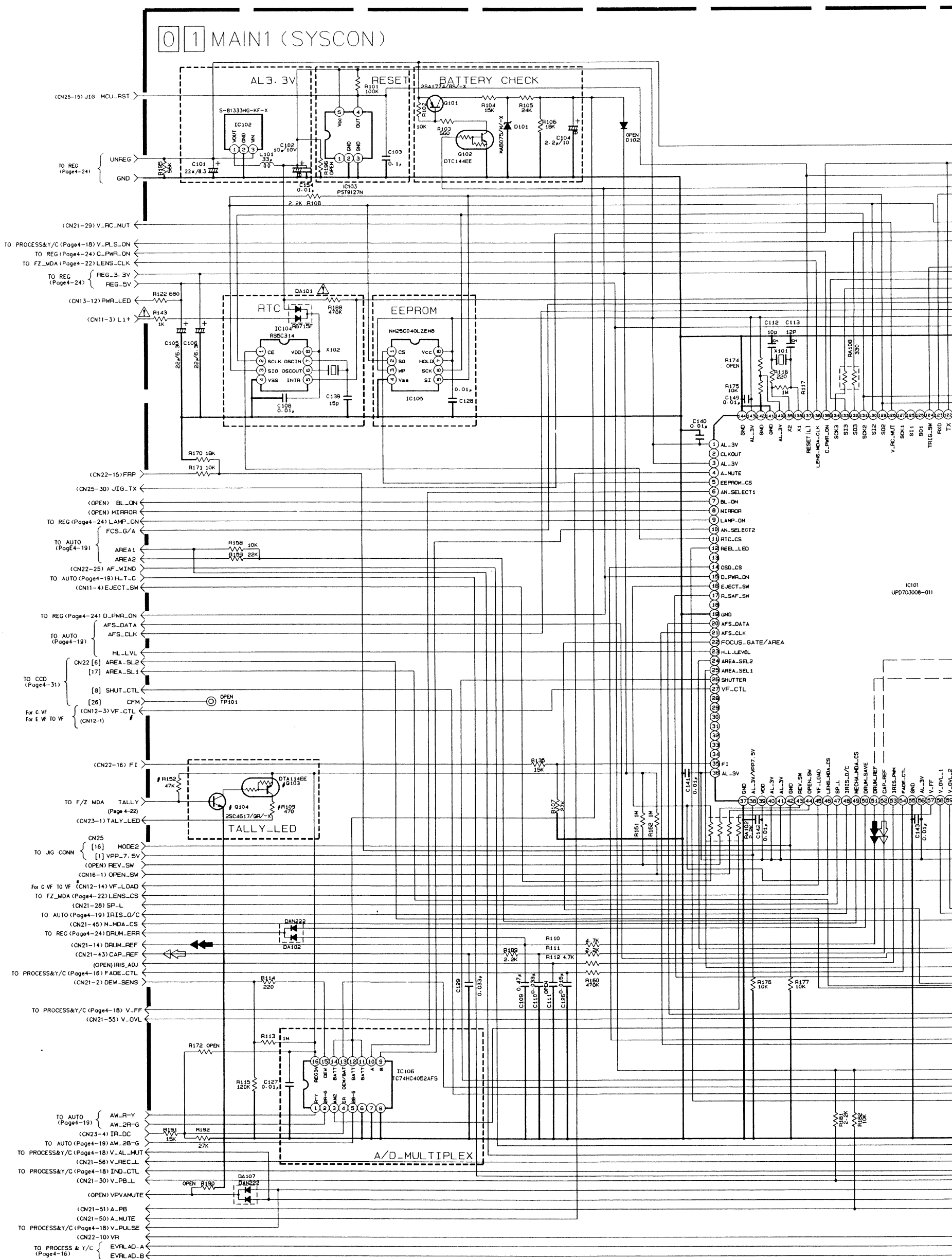


I J K L 4-9 4-10 M N O P

4.4 SYSCON/MDA BLOCK DIAGRAM



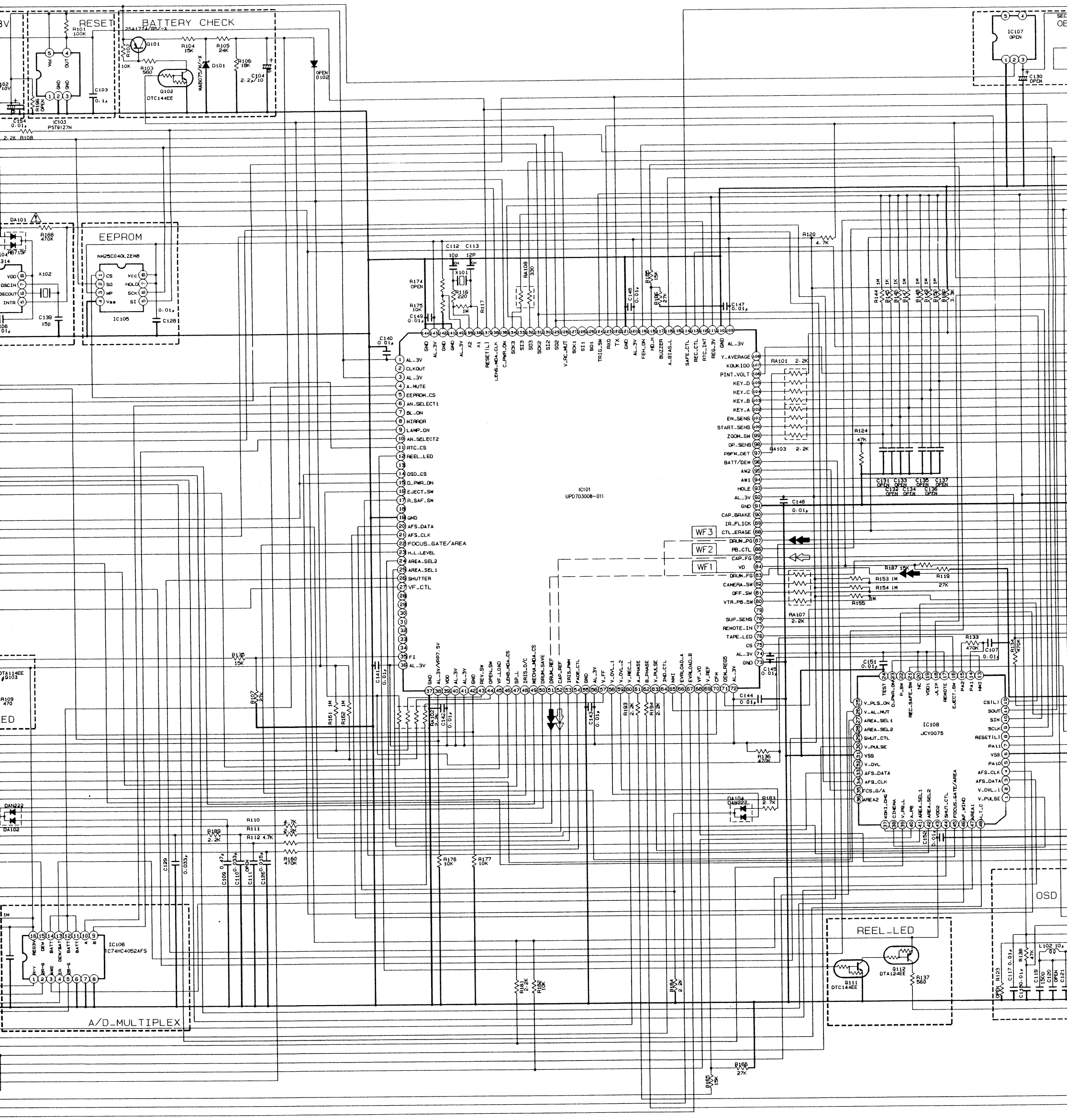
4.5 SYSCON SCHEMATIC DIAGRAM



NOTE: 1. COMPARISON CHART OF MODELS & MARKS (#) 2. For SYSCON waveforms, please refer to page 4-59.

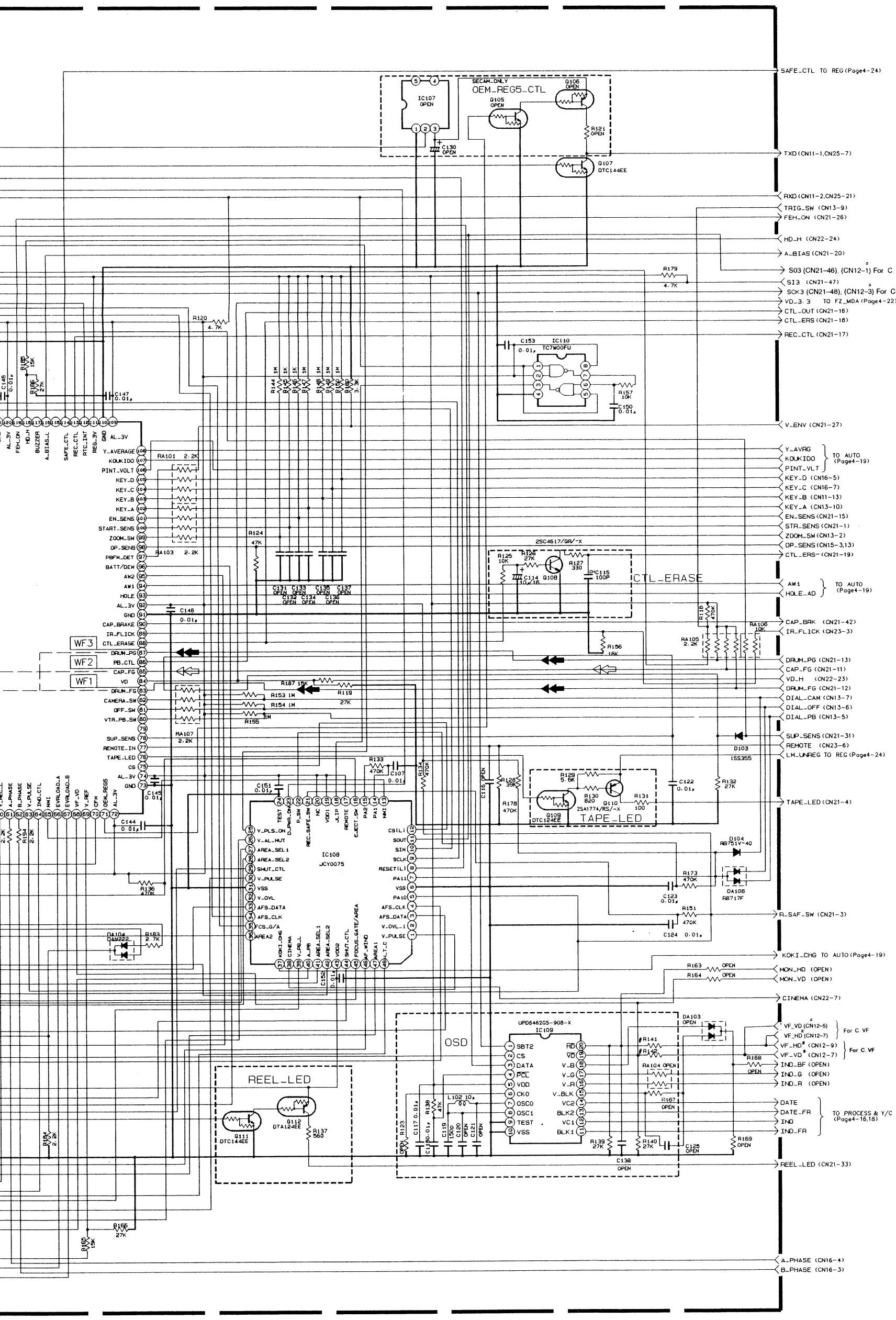
REF. NO / MODELS	Q103	Q104	R109	R141	R142	R152	CN12
GR-AX230U (C)	OPEN	OPEN	OPEN	15K	15K	OPEN	10pin
GR-AX430U (C)	OPEN	OPEN	OPEN	0Ω	0Ω	OPEN	14pin
GR-AX730U (C)	USED	USED	USED	0Ω	0Ω	USED	14pin

(SYSCON)



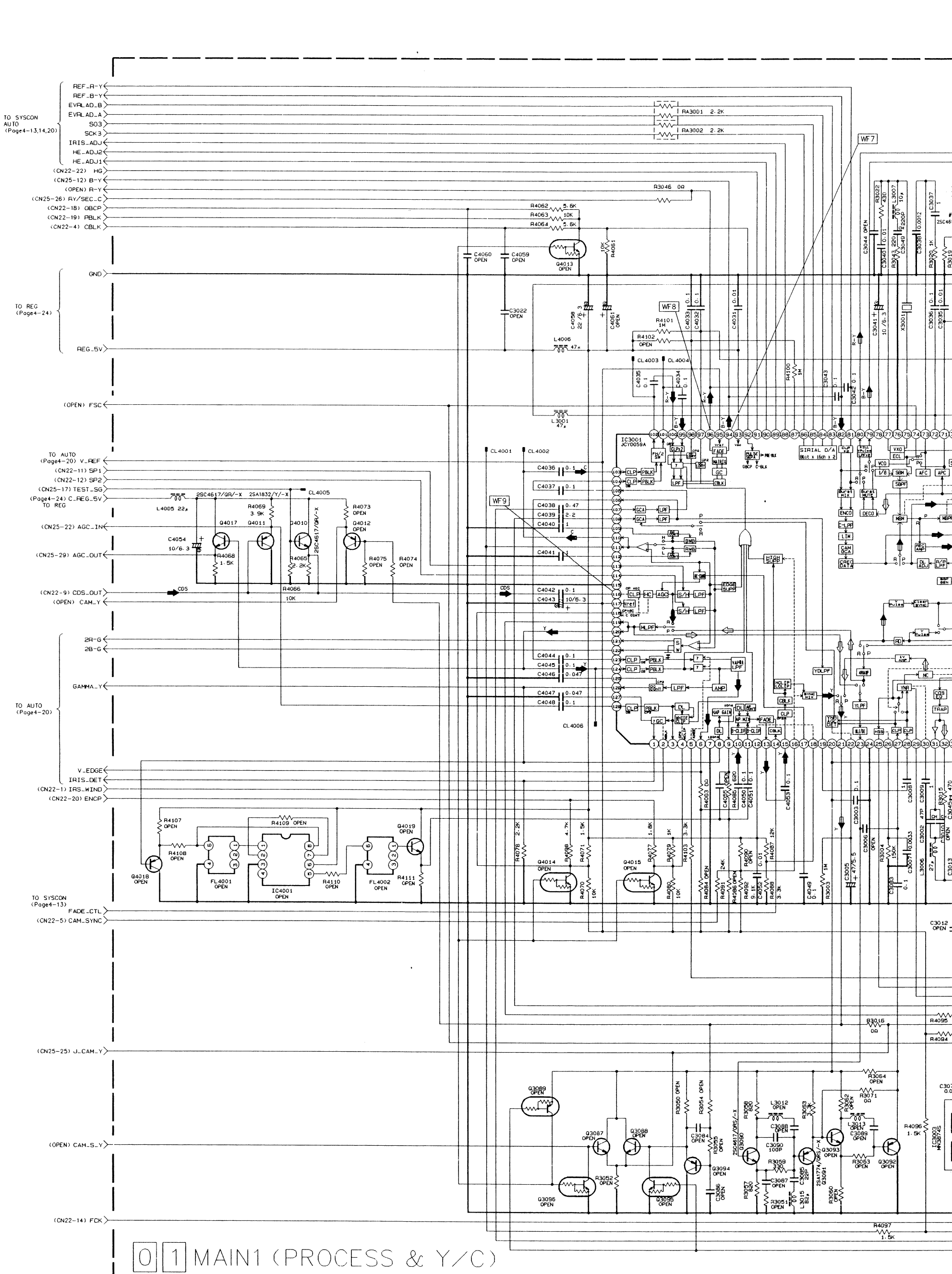
OF MODELS & MARKS (#) 2. For SYSCON waveforms, please refer to page 4-59.

Q104	R109	R141	R142	R152	CN12
OPEN	OPEN	15K	15K	OPEN	10pin
OPEN	OPEN	0Ω	0Ω	OPEN	14pin
USED	USED	0Ω	0Ω	USED	14pin



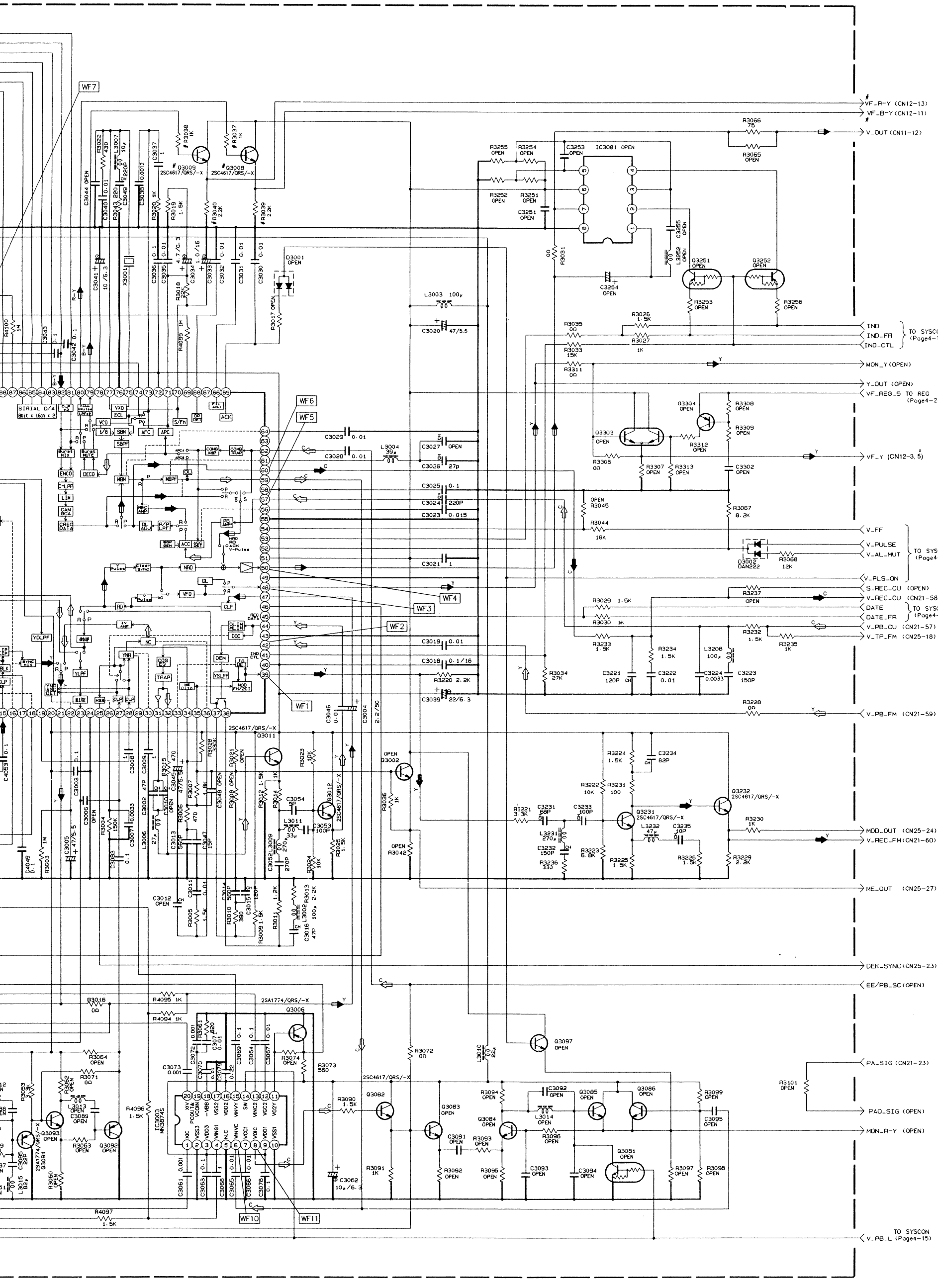
4.5 SYSCON SCHEMATIC DIAGRAM

4.6 PROCESS AND Y/C SCHEMATIC DIAGRAM



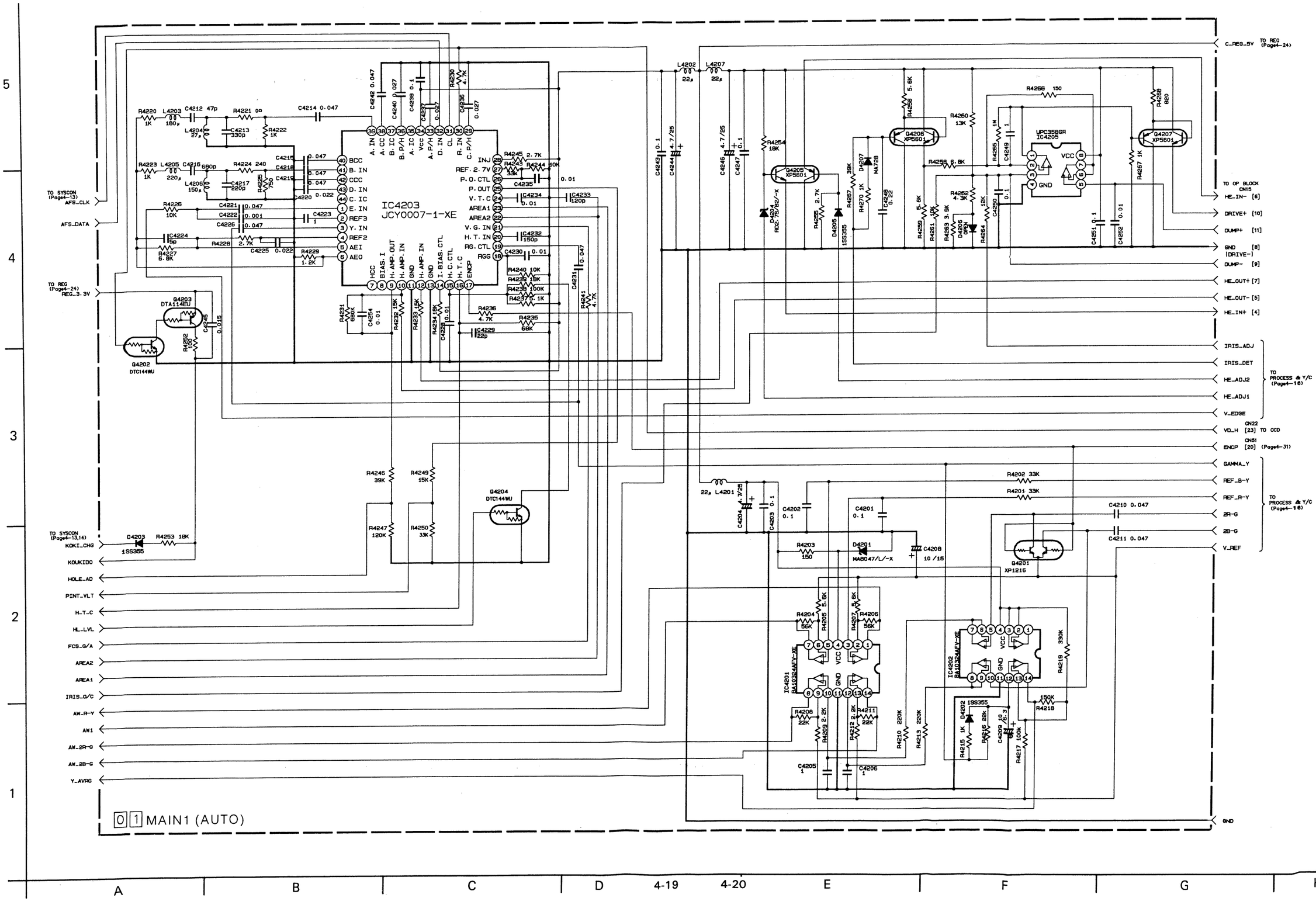
NOTE: 1. COMPARISON CHART OF MODELS & MARKS (#) 2. For PROCESS & Y/C waveforms, please refer to page 4-59.

REF. NO / MODELS	Q3008	Q3009	R3037	R3038	R3039	R3040	CN12
GR-AX230U (C)	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	10Pin
GR-AX430U (C) GR-AX730U (C)	USED	USED	USED	USED	USED	USED	14Pin

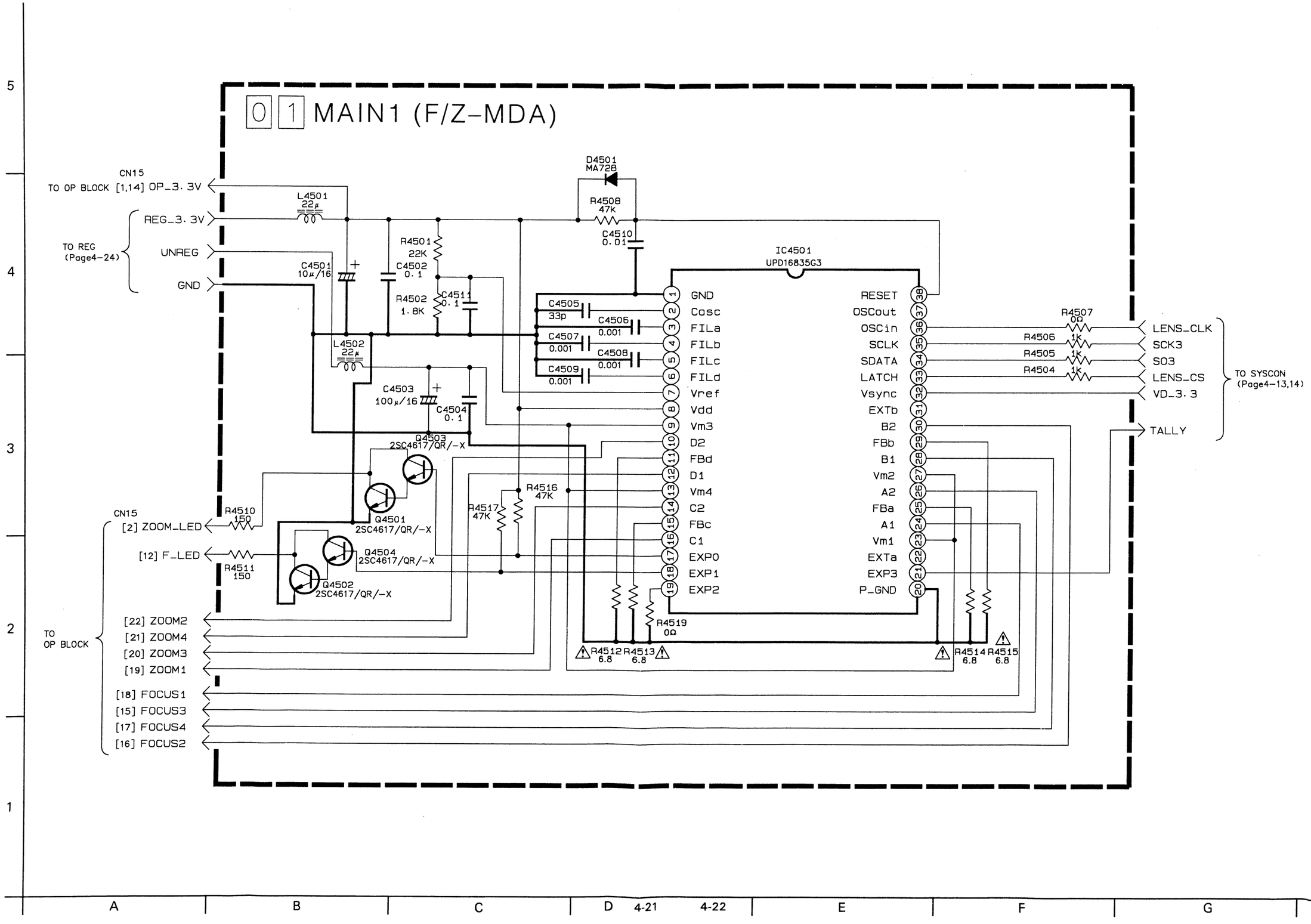


4.6 PROCESS AND Y/C SCHEMATIC DIAGRAM

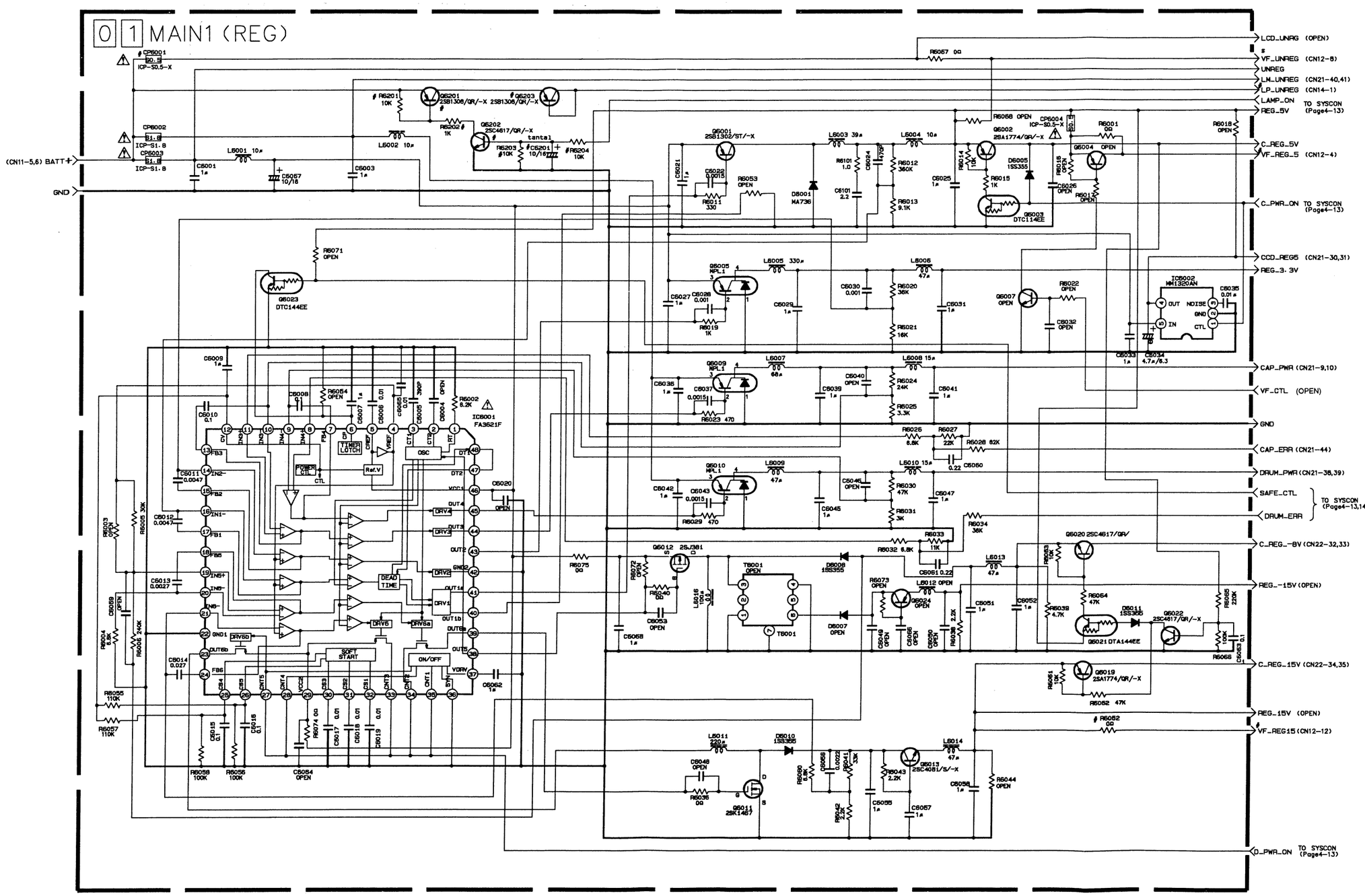
4.7 AUTO SCHEMATIC DIAGRAM



4.8 F/Z MDA SCHEMATIC DIAGRAM



4.9 REGULATOR SCHEMATIC DIAGRAM



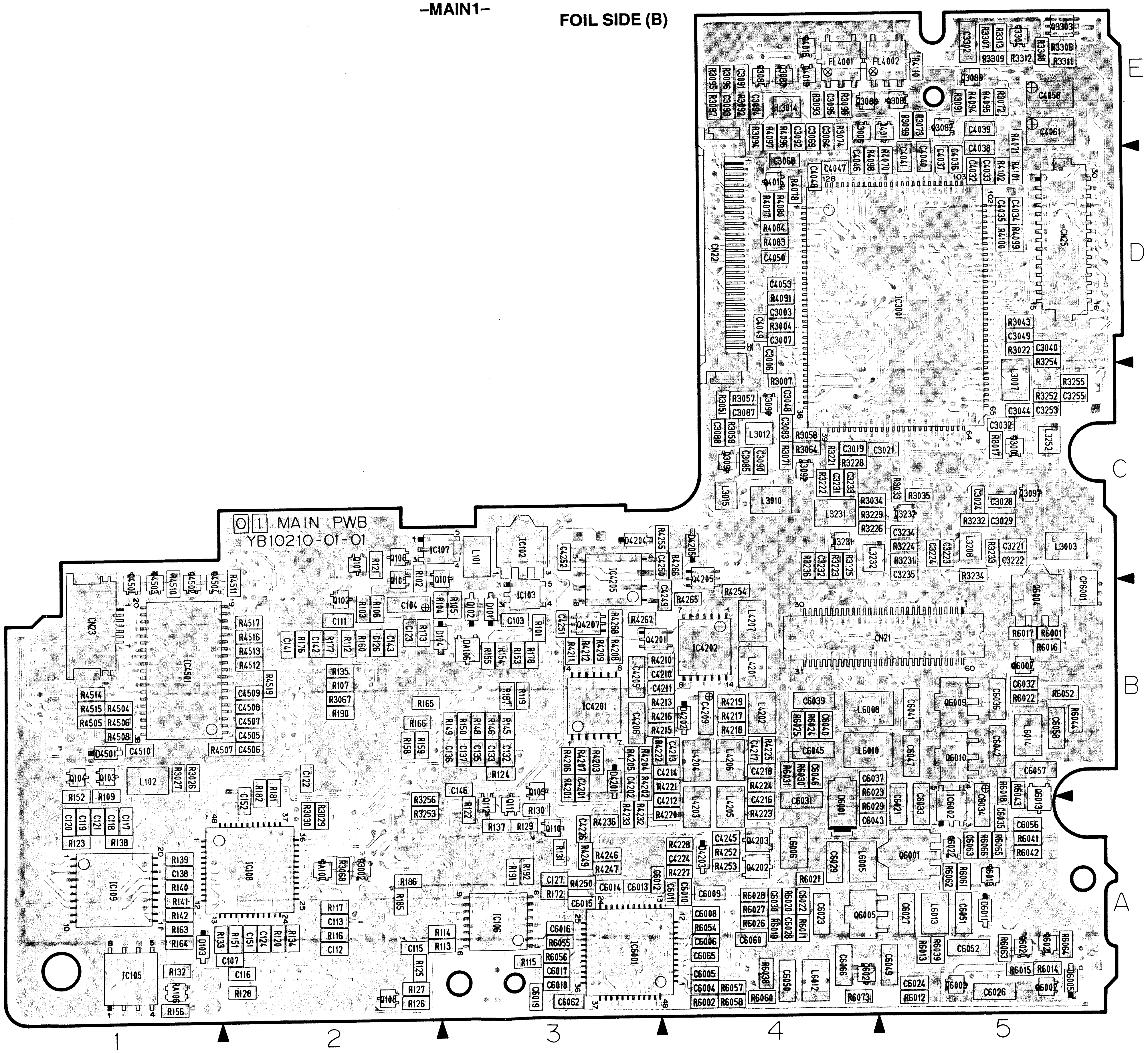
NOTE : COMPARISON CHART OF MODELS & MARKS (#)

REF. NO / MODELS	Q6201	Q6202	Q6203	R6052	R6201	R6202	R6203	R6204	C6201	CN12	CN14	CP6001
GR-AX230U (C)	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN	10Pin	OPEN	OPEN
GR-AX430U (C)	OPEN	OPEN	OPEN	USED	OPEN	OPEN	OPEN	OPEN	OPEN	14Pin	OPEN	USED
GR-AX730U (C)	USED	USED	USED	USED	USED	USED	USED	USED	USED	14Pin	USED	USED

4.10 MAIN1 AND SUB CIRCUIT BOARDS

-MAIN1-

FOIL SIDE (B)



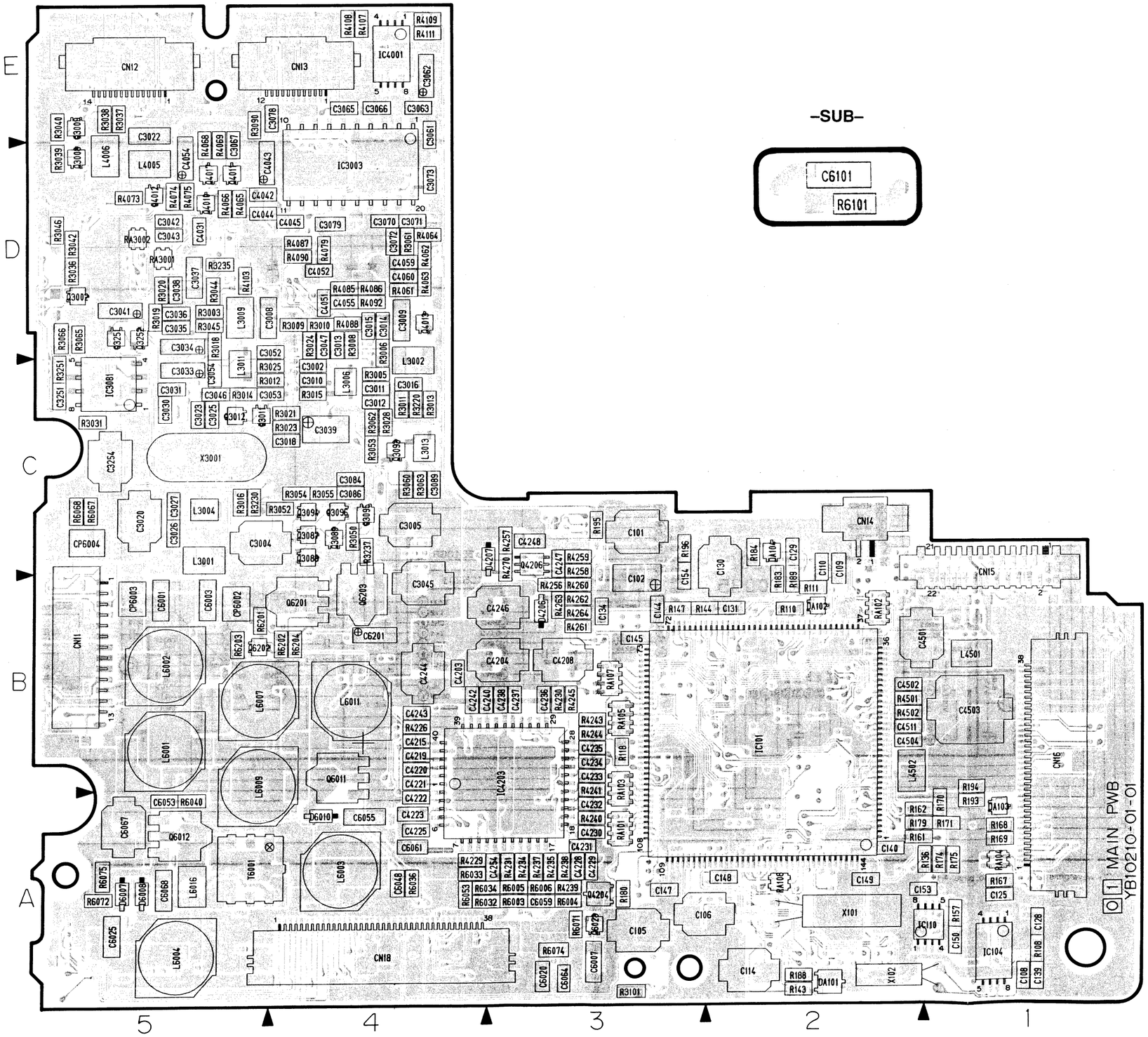
COMPONENT PARTS LOCATION GUIDE (MAIN1)

REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION		
CAPACITOR				C3025	A	C	5C	C4038	B	C	5D	C4507	B	C	2B	CN16	A	C	1A	L3013	A	C	4C
C101	A	C	3C	C3026	A	C	5C	C4039	B	C	5E	C4508	B	C	2B	CN18	A	C	4A	L3014	B	C	4E
C102	A	C	3B	C3027	A	C	5C	C4040	B	C	5D	C4509	B	C	2B	CN21	B	C	5B	L3015	B	C	4C
C103	B	C	3B	C3028	B	C	5C	C4041	B	C	5D	C4510	B	C	1B	CN22	B	C	4D	L3208	B	C	5C
C104	B	C	2B	C3029	B	C	5C	C4042	A	C	5D	C4511	A	C	2B	CN23	B	C	1B	L3231	B	C	4C
C105	A	C	3A	C3030	A	C	5C	C4043	A	C	5D	C6001	A	C	5B	CN25	B	C	5D	L3232	B	C	4C
C106	A	C	3A	C3031	A	C	5C	C4044	A	C	5D	C6003	A	C	5B	**CIRCUIT PROTECTOR**				L3252	B	C	5C
C107	B	C	2A	C3032	B	C	5C	C4045	A	C	4D	C6004	B	C	4A					L4005	A	C	5D
C108	A	C	1A	C3033	A	C	5C	C4046	B	C	4D	C6005	B	C	4A	CP6001	B	C	5B	L4006	A	C	5D
C109	A	C	2C	C3034	A	C	5D	C4047	B	C	4D	C6006	B	C	4A	CP6002	A	C	5B	L4201	B	C	4B
C110	A	C	2C	C3035	A	C	5D	C4048	B	C	4D	C6007	A	C	3A	CP6003	A	C	5B	L4202	B	C	4B
C111	B	C	2B	C3036	A	C	5D	C4049	B	C	4D	C6008	B	C	4A	CP6004	A	C	5C	L4203	B	C	4A
C112	B	C	2A	C3037	A	C	5D	C4050	B	C	4D	C6009	B	C	4A	**DIODE**				L4204	B	C	4B
C113	B	C	2A	C3038	A	C	5D	C4051	A	C	4D	C6010	B	C	4A					L4205	B	C	4A
C114	A	C	2A	C3039	A	C	4C	C4052	A	C	4D	C6011	B	C	4A	D101	B	C	3B	L4206	B	C	4B
C115	B	C	2A	C3040	B	C	5D	C4053	B	C	4D	C6012	B	C	3A	D102	B	C	3B	L4207	B	C	4B
C116	B	C	2A	C3041	A	C	5D	C4054	A	C	5D	C6013	B	C	3A	D103	B	C	1A	L4501	A	C	1B
C117	B	C	1A	C3042	A	C	5D	C4055	A	C	4D	C6014	B	C	3A	D104	B	C	2B	L4502	A	C	2B
C118	B	C	1A	C3043	A	C	5D	C4058	B	C	5E	C6015	B	C	3A	D3001	B	C	5C	L6001	A	C	5B
C119	B	C	1A	C3044	B	C	5C	C4059	A	C	4D	C6016	B	C	3A	D3002	B	C	2A	L6002	A	C	5B
C120	B	C	1A	C3045	A	C	4B	C4060	A	C	4D	C6017	B	C	3A	D4201	B	C	3B	L6003	A	C	4A
C121	B	C	1A	C3046	A	C	5C	C4061	B	C	5E	C6018	B	C	3A	D4202	B	C	4B	L6004	A	C	5A
C122	B	C	2B	C3047	A	C	4D	C4201	B	C	3B	C6019	B	C	3A	D4203	B	C	4A	L6005	B	C	4A
C123	B	C	2B	C3048	B	C	4C	C4202	B	C	3B	C6020	A	C	3A	D4204	B	C	3C	L6006	B	C	4A
C124	B	C	2A	C3049	B	C	5D	C4203	A	C	4B	C6021	B	C	5A	D4205	B	C	4C	L6007	A	C	5B
C125	A	C	1A	C3052	A	C	4D	C4204	A	C	3B	C6022	B	C	4A	D4206	A	C	3B	L6008	B	C	4B
C126	B	C	2B	C3053	A	C	4C	C4205	B	C	3B	C6023	B	C	4A	D4207	A	C	3C	L6009	A	C	5B
C127	B	C	3A	C3054	A	C	5C	C4206	B	C	3B	C6024	B	C	5A	D4501	B	C	1B	L6010	B	C	4B
C128	A	C	1A	C3061	A	C	4E	C4208	A	C	3B	C6025	A	C	5A	D6001	B	C	4A	L6011	A	C	4B
C129	A	C	2C	C3062	A	C	4E	C4209	B	C	4B	C6026	B	C	5A	D6005	B	C	5A	L6012	B	C	4A
C130	A	C	2C	C3063	A	C	4E	C4210	B	C	3B	C6027	B	C	5A	D6007	A	C	5A	L6013	B	C	5A
C131	A	C	2B	C3064	B	C	4E	C4211	B	C	3B	C6028	B	C	4A	D6008	A	C	5A	L6014	B	C	5B
C132	B	C	3B	C3065	A	C	4E	C4212	B	C	4B	C6029	B	C	4A	D6010	A	C	4A	L6016	A	C	5A
C133	B	C	3B	C3066	A	C	4E	C4213	B	C	4B	C6030	B	C	4A	D6011	B	C	5A	**TRANSISTOR**			
C134	A	C	3B	C3067	A	C	5D	C4214	B	C	4B	C6031	B	C	4A	DA101	A	C	2A				
C135	B	C	3B	C3068	B	C	4D	C4215	A	C	4B	C6032	B	C	5B	DA102	A	C	2B	Q101	B	C	2C
C136	B	C	3B	C3069	B	C	4E	C4216	B	C	4B	C6033	B	C	5A	DA103	A	C	1A	Q102	B	C	2B
C137	B	C	3B	C3070	A	C	4D	C4217	B	C	4B	C6034	B	C	5A	DA104	A	C	2C	Q103	B	C	1B
C138	B	C	1A	C3071	A	C	4D	C4218	B	C	4B	C6035	B	C	5A	DA106	B	C	3B	Q104	B	C	1B
C139	A	C	1A	C3072	A	C	4D	C4219	A	C	4B	C6036	B	C	5B	DA107	B	C	2A	Q105	B	C	2C
C140	A	C	2A	C3073	A	C	4D	C4220	A	C	4B	C6037	B	C	4B	**IC**				Q106	B	C	2C
C141	B	C	2B	C3078	A	C	4E	C4221	A	C	4B	C6039	B	C	4B					Q107	B	C	2C
C142	B	C	2B	C3079	A	C	4D	C4222	A	C	4A	C6040	B	C	4B	IC101	A	C	2B	Q108	B	C	2A
C143	B	C	2B	C3083	B	C	4C	C4223	A	C	4A	C6041	B	C	5B	IC102	B	C	3C	Q109	B	C	3B
C144	A	C	3B	C3084	A	C	4C	C4224	B	C	4A	C6042	B	C	5B	IC103	B	C	3B	Q110	B	C	3A
C145	A	C	3B	C3085	B	C	4C	C4225	A	C	4A	C6043	B	C	4A	IC104	A	C	1A	Q111	B	C	3A
C146	B	C	3B	C3086	A	C	4C	C4226	B	C	3A	C6045	B	C	4B	IC105	B	C	1A	Q112	B	C	3A
C147	A	C	3A	C3087	B	C	4C	C4228	A	C	3A	C6046	B	C	4B	IC106	B	C	3A	Q3002	A	C	5D
C148	A	C	2A	C3088	B	C	4C	C4229	A	C	3A	C6047	B	C	5B	IC107	B	C	2C	Q3006	B	C	4E
C149	A	C	2A	C3089	A	C	4C	C4230	A	C	3A	C6048	A	C	4A	IC108	B	C	2A	Q3008	A	C	5D
C150	A	C	1A	C3090	B	C	4C	C4231	A	C	3A	C6049	B	C	5A	IC109	B	C	1A	Q3009	A	C	5E
C151	B	C	2A	C3091	B	C	4E	C4232	A	C	3A	C6050	B	C	4A	IC110	A	C	1A	Q3011	A	C	5C
C152	B	C	2B	C3092	B	C	4E	C4233	A	C	3B	C6051	B	C	5A	IC3001	B	C	5D	Q3012	A	C	5C
C153	A	C	1A	C3093	B	C	4E	C4234	A	C	3B	C6052	B	C	5A	IC3003	A	C	4D	Q3081	B	C	5E
C154	A	C	3B	C3094	B	C	4E	C4235	A	C	3B	C6053	A	C	5A	IC3081	A	C	5C	Q3082	B	C	5E
C3002	A	C	4C	C3095	B	C	4E	C4236	A	C	3B	C6055	A	C	4A	IC4001	A	C	4E	Q3083	B	C	4E
C3003	B	C	4D	C3221	B	C	5C	C4237	A	C	3B	C6056	B	C	5A	IC4201	B	C	3B	Q3084	B	C	4E
C3004	A	C	5C	C3222	B	C	5C	C4238	A	C	3B	C6057	B	C	5B	IC4202	B	C	4B	Q3085	B	C	5E
C3005	A	C	4C	C3223	B	C	5C	C4240	A	C	4B	C6058	B	C	5B	IC4203	A	C	3B	Q3086	B	C	4E
C3006	B	C	4D	C3224	B	C	5C	C4242	A	C	4B	C6059	A	C	3A	IC4205	B	C	3C	Q3087	A	C	4C
C3007	B	C	4D	C3231	B	C	4C	C4243	A	C	4B	C6060	B	C	4A	IC4501	B	C	1B	Q3088	A	C	4C
C3008	A	C	5D	C3232	B	C	4C	C4244	A	C	4B	C6061	A	C	4A	IC6001	B	C	3A	Q3089	A	C	4C
C3009	A	C	4D	C3233	B	C	4C	C4245	B	C	4A	C6062	B	C	3A	IC6002	B	C	5A	Q3090	B	C	4C
C3010	A	C	4C	C3234	B	C	5C	C4246	A	C	3B	C6063	B	C	5A	**COIL**				Q3091	B	C	4C
C3011	A	C	4C	C3235	B	C	5C	C4247	A	C	3C	C6064	A	C	3A					Q3092	B	C	4C
C3012	A	C	4C	C3251	A	C	5C	C4248	A	C	3C	C6065	B	C	4A	L101	B	C	3C	Q3093	A	C	4C
C3013	A	C	4D	C3253	B	C	5C	C4249	B	C	3B	C6066	B	C	4A	L102	B	C	1B	Q3094	A	C	4C
C3014	A	C	4D	C3254	A	C	5C	C4250	B	C	3C	C6067	A	C	5A	L3001	A	C	5C	Q3095	A	C	4C
C3015	A	C	4D	C3255	B	C	5C	C4251	B	C	3B	C6068	A	C	5A	L3002	A	C	4C	Q3096	A	C	4C
C3016	A	C	4C	C3302	B	C	5E	C4252	B	C	3C	C6201	A	C	4B	L3003	B	C	5C	Q3097	B	C	5C
C3018	A	C	4C	C4031	A	C	5D	C4254	A	C	3A	**CONNECTOR**				L3004	A	C	5C	Q3231	B	C	4C
C3019	B	C	4C	C4032	B	C	5D	C4501	A	C	2B					L3006	A	C	4C	Q3232	B	C	5C
C3020	A	C	5C	C4033	B	C	5D	C4502	A	C	2B	CN11	A	C	5B	L3007	B	C	5C	Q3251	A	C	5D
C3021	B	C	5C	C4034	B	C	5D	C4503	A	C	1B	CN12	A	C	5E	L3009	A	C	5D	Q3252	A	C	5D
C3022	A	C	5E	C4035	B	C	5D	C4504	A	C	2B	CN13	A	C	4E	L3010	B	C	4C	Q3303	B	C	5E
C3023	A	C	5C	C4036	B	C	5D	C4505	B	C	2B	CN14	A	C	2C	L3011	A	C	5C	Q3304	B	C	5E
C3024	B	C	5C	C4037	B	C	5D	C4506	B	C	2B	CN15	A	C	1C	L3012	B	C	4C	Q4010	A	C	5D

REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION			REF.No.	LOCATION		
Q4011	A	C	5D	R137	B	C	3A	R3020	A	C	5D	R3253	B	C	2A	R4227	B	C	4A	R6026	B	C	4A
Q4012	A	C	5D	R138	B	C	1A	R3021	A	C	4C	R3254	B	C	5D	R4228	B	C	4A	R6027	B	C	4A
Q4013	A	C	4D	R139	B	C	1A	R3022	B	C	5D	R3255	B	C	5C	R4229	A	C	4A	R6028	B	C	4A
Q4014	B	C	5E	R140	B	C	1A	R3023	A	C	4C	R3256	B	C	2B	R4230	A	C	3B	R6029	B	C	4A
Q4015	B	C	4D	R141	B	C	1A	R3024	A	C	4D	R3306	B	C	5E	R4231	A	C	3A	R6030	B	C	4B
Q4017	A	C	5D	R142	B	C	1A	R3025	A	C	4C	R3307	B	C	5E	R4232	B	C	3A	R6031	B	C	4B
Q4018	B	C	4E	R143	A	C	2A	R3026	B	C	1B	R3308	B	C	5E	R4233	B	C	3A	R6032	A	C	4A
Q4019	B	C	4E	R144	A	C	3B	R3027	B	C	1B	R3309	B	C	5E	R4234	A	C	3A	R6033	A	C	4A
Q4201	B	C	3B	R145	B	C	3B	R3028	A	C	4C	R3311	B	C	5E	R4235	A	C	3A	R6034	A	C	4A
Q4202	B	C	4A	R146	B	C	3B	R3029	B	C	2A	R3312	B	C	5E	R4236	B	C	3A	R6036	A	C	4A
Q4203	B	C	4A	R147	A	C	3B	R3030	B	C	2A	R3313	B	C	5E	R4237	A	C	3A	R6038	B	C	4A
Q4204	A	C	3A	R148	B	C	3B	R3031	A	C	5C	R4061	A	C	4D	R4238	A	C	3A	R6039	B	C	5A
Q4205	B	C	4C	R149	B	C	3B	R3033	B	C	5C	R4062	A	C	4D	R4239	A	C	3A	R6040	A	C	5A
Q4206	A	C	3C	R150	B	C	3B	R3034	B	C	4C	R4063	A	C	4D	R4240	A	C	3A	R6041	B	C	5A
Q4207	B	C	3B	R151	B	C	2A	R3035	B	C	5C	R4064	A	C	4D	R4241	A	C	3A	R6042	B	C	5A
Q4501	B	C	1C	R152	B	C	1B	R3036	A	C	5D	R4065	A	C	5D	R4243	A	C	3B	R6043	B	C	5B
Q4502	B	C	1C	R153	B	C	3B	R3037	A	C	5E	R4066	A	C	5D	R4244	A	C	3B	R6044	B	C	5B
Q4503	B	C	1C	R154	B	C	3B	R3038	A	C	5E	R4068	A	C	5D	R4245	A	C	3B	R6052	B	C	5B
Q4504	B	C	1C	R155	B	C	3B	R3039	A	C	5D	R4069	A	C	5D	R4246	B	C	3A	R6053	A	C	4A
Q6001	B	C	5A	R156	B	C	1A	R3040	A	C	5E	R4070	B	C	5D	R4247	B	C	3A	R6054	B	C	4A
Q6002	B	C	5A	R157	A	C	1A	R3042	A	C	5D	R4071	B	C	5E	R4249	B	C	3A	R6055	B	C	3A
Q6003	B	C	5A	R158	B	C	2B	R3043	B	C	5D	R4073	A	C	5D	R4250	B	C	3A	R6056	B	C	3A
Q6004	B	C	5B	R159	B	C	2B	R3044	A	C	5D	R4074	A	C	5D	R4252	B	C	4A	R6057	B	C	4A
Q6005	B	C	4A	R160	B	C	2B	R3045	A	C	5D	R4075	A	C	5D	R4253	B	C	4A	R6058	B	C	4A
Q6007	B	C	5B	R161	A	C	2A	R3046	A	C	5D	R4077	B	C	4D	R4254	B	C	4B	R6060	B	C	4A
Q6009	B	C	5B	R162	A	C	2A	R3050	A	C	4C	R4078	B	C	4D	R4255	B	C	3C	R6061	B	C	5A
Q6010	B	C	5B	R163	B	C	1A	R3051	B	C	4C	R4079	A	C	4D	R4256	A	C	3B	R6062	B	C	5A
Q6011	A	C	4B	R164	B	C	1A	R3052	A	C	4C	R4080	B	C	4D	R4257	A	C	3C	R6063	B	C	5A
Q6012	A	C	5A	R165	B	C	2B	R3053	A	C	4C	R4083	B	C	4D	R4258	A	C	3C	R6064	B	C	5A
Q6013	B	C	5A	R166	B	C	2B	R3054	A	C	4C	R4084	B	C	4D	R4259	A	C	3C	R6065	B	C	5A
Q6019	B	C	5A	R167	A	C	1A	R3055	A	C	4C	R4085	A	C	4D	R4260	A	C	3B	R6066	B	C	5A
Q6020	B	C	5A	R168	A	C	1A	R3057	B	C	4C	R4086	A	C	4D	R4261	A	C	3B	R6067	A	C	5C
Q6021	B	C	5A	R169	A	C	1A	R3058	B	C	4C	R4087	A	C	4D	R4262	A	C	3B	R6068	A	C	5C
Q6022	B	C	5A	R170	A	C	1A	R3059	B	C	4C	R4088	A	C	4D	R4263	A	C	3B	R6071	A	C	3A
Q6023	A	C	3A	R171	A	C	1A	R3060	A	C	4C	R4090	A	C	4D	R4264	A	C	3B	R6072	A	C	5A
Q6024	B	C	4A	R172	B	C	3A	R3061	A	C	4D	R4091	B	C	4D	R4265	B	C	4B	R6073	B	C	4A
Q6201	A	C	4B	R173	B	C	2B	R3062	A	C	4C	R4092	A	C	4D	R4266	B	C	4C	R6074	A	C	3A
Q6202	A	C	5B	R174	A	C	1A	R3063	A	C	4C	R4094	B	C	5E	R4267	B	C	3B	R6075	A	C	5A
Q6203	A	C	4B	R175	A	C	1A	R3064	B	C	4C	R4095	B	C	5E	R4268	B	C	3B	R6201	A	C	5B
				R176	B	C	2B	R3065	A	C	5D	R4096	B	C	4E	R4270	A	C	3C	R6202	A	C	4B
RESISTOR				R177	B	C	2B	R3066	A	C	5D	R4097	B	C	4E	R4501	A	C	2B	R6203	A	C	5B
R101	B	C	3B	R178	B	C	3B	R3067	B	C	2B	R4098	B	C	4D	R4502	A	C	2B	R6204	A	C	4B
R102	B	C	2C	R179	A	C	2A	R3068	B	C	2A	R4099	B	C	5D	R4504	B	C	1B	RA101	A	C	3A
R103	B	C	2B	R180	A	C	3A	R3071	B	C	4C	R4100	B	C	5D	R4505	B	C	1B	RA102	A	C	2B
R104	B	C	2B	R181	B	C	2B	R3072	B	C	5E	R4101	B	C	5D	R4506	B	C	1B	RA103	A	C	3A
R105	B	C	3B	R182	B	C	2B	R3073	B	C	5E	R4102	B	C	5D	R4507	B	C	1B	RA104	A	C	1A
R106	B	C	2B	R183	A	C	2B	R3074	B	C	4E	R4103	A	C	5D	R4508	B	C	1B	RA105	A	C	3B
R107	B	C	2B	R184	A	C	2C	R3090	A	C	5E	R4107	A	C	4E	R4510	B	C	1C	RA106	B	C	1A
R108	A	C	1A	R185	B	C	2A	R3091	B	C	5E	R4108	A	C	4E	R4511	B	C	2C	RA107	A	C	3B
R109	B	C	1B	R186	B	C	2A	R3092	B	C	4E	R4109	A	C	4E	R4512	B	C	2B	RA108	A	C	2A
R110	A	C	2B	R187	B	C	3B	R3093	B	C	4E	R4110	B	C	5E	R4513	B	C	2B	RA3001	A	C	5D
R111	A	C	2B	R188	A	C	2A	R3094	B	C	4E	R4111	A	C	4E	R4514	B	C	1B	RA3002	A	C	5D
R112	B	C	2B	R189	A	C	2B	R3095	B	C	4E	R4201	B	C	3B	R4515	B	C	1B	**TEST POINT**			
R113	B	C	2A	R190	B	C	2B	R3096	B	C	4E	R4202	B	C	3B	R4516	B	C	2B				
R114	B	C	2A	R191	B	C	3A	R3097	B	C	4E	R4203	B	C	3B	R4517	B	C	2B	TP101	B	C	4D
R115	B	C	3A	R192	B	C	3A	R3098	B	C	4E	R4204	B	C	3B	R4519	B	C	2B	**OTHER**			
R116	B	C	2A	R193	A	C	1A	R3099	B	C	5E	R4205	B	C	3B	R6001	B	C	5B				
R117	B	C	2A	R194	A	C	1B	R3101	A	C	3A	R4206	B	C	3B	R6002	B	C	4A	FL4001	B	C	4E
R118	A	C	3B	R195	A	C	3C	R3220	A	C	4C	R4207	B	C	3B	R6003	A	C	3A	FL4002	B	C	5E
R119	B	C	3B	R196	A	C	3C	R3221	B	C	4C	R4208	B	C	3B	R6004	A	C	3A	T6001	A	C	5A
R120	B	C	2A	R3003	A	C	5D	R3222	B	C	4C	R4209	B	C	3B	R6005	A	C	3A	X101	A	D	2A
R121	B	C	2C	R3004	B	C	4D	R3223	B	C	4C	R4210	B	C	3B	R6006	A	C	3A	X102	A	D	1A
R122	B	C	3A	R3005	A	C	4C	R3224	B	C	5C	R4211	B	C	3B	R6011	B	C	4A	X3001	A	D	5C
R123	B	C	1A	R3006	A	C	4D	R3225	B	C	4C	R4212	B	C	3B	R6012	B	C	5A				
R124	B	C	3B	R3007	B	C	4C	R3226	B	C	4C	R4213	B	C	3B	R6013	B	C	5A				
R125	B	C	2A	R3008	A	C	4D	R3228	B	C	4C	R4215	B	C	3B	R6014	B	C	5A				
R126	B	C	2A	R3009	A	C	4D	R3229	B	C	4C	R4216	B	C	3B	R6015	B	C	5A				
R127	B	C	2A	R3010	A	C	4D	R3230	A	C	5C	R4217	B	C	4B	R6016	B	C	5B				
R128	B	C	2A	R3011	A	C	4C	R3231	B	C	5C	R4218	B	C	4B	R6017	B	C	5B				
R129	B	C	3A	R3012	A	C	4C	R3232	B	C	5C	R4219	B	C	4B	R6018	B	C	5B				
R130	B	C	3A	R3013	A	C	4C	R3233	B	C	5C	R4220	B	C	4A	R6019	B	C	4A				
R131	B	C	3A	R3014	A	C	5C	R3234	B	C	5C	R4221	B	C	4B	R6020	B	C	4A				
R132	B	C	1A	R3015	A	C	4C	R3235	A	C	5D	R4222	B	C	3B	R6021	B	C	4A				
R133	B	C	1A	R3016	A	C	5C	R3236	B	C	4C	R4223	B	C	4A	R6022	B	C	5B				
R134	B	C	2A	R3017	B	C	5C	R3237	A	C	4C	R4224	B	C	4B	R6023	B	C	4B				
R135	B	C	2B	R3018	A	C	5D	R3251	A	C	5C	R4225	B	C	4B	R6024	B	C	4B				
R136	A	C	1A	R3019	A	C	5D	R3252	B	C	5C	R4226	A	C	4B	R6025	B	C	4B				

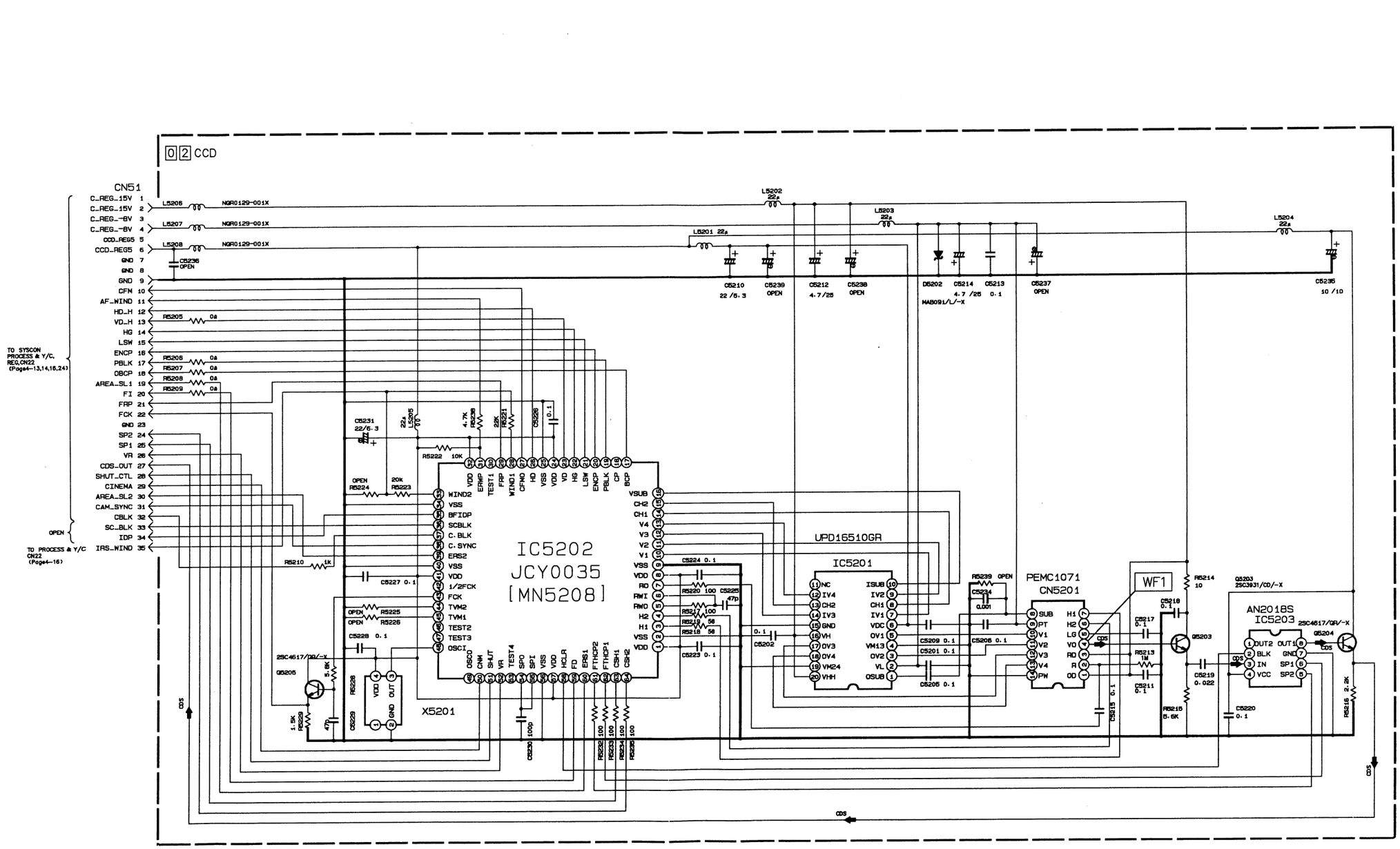
–MAIN1–

COMPONENT SIDE (A)



–SUB–

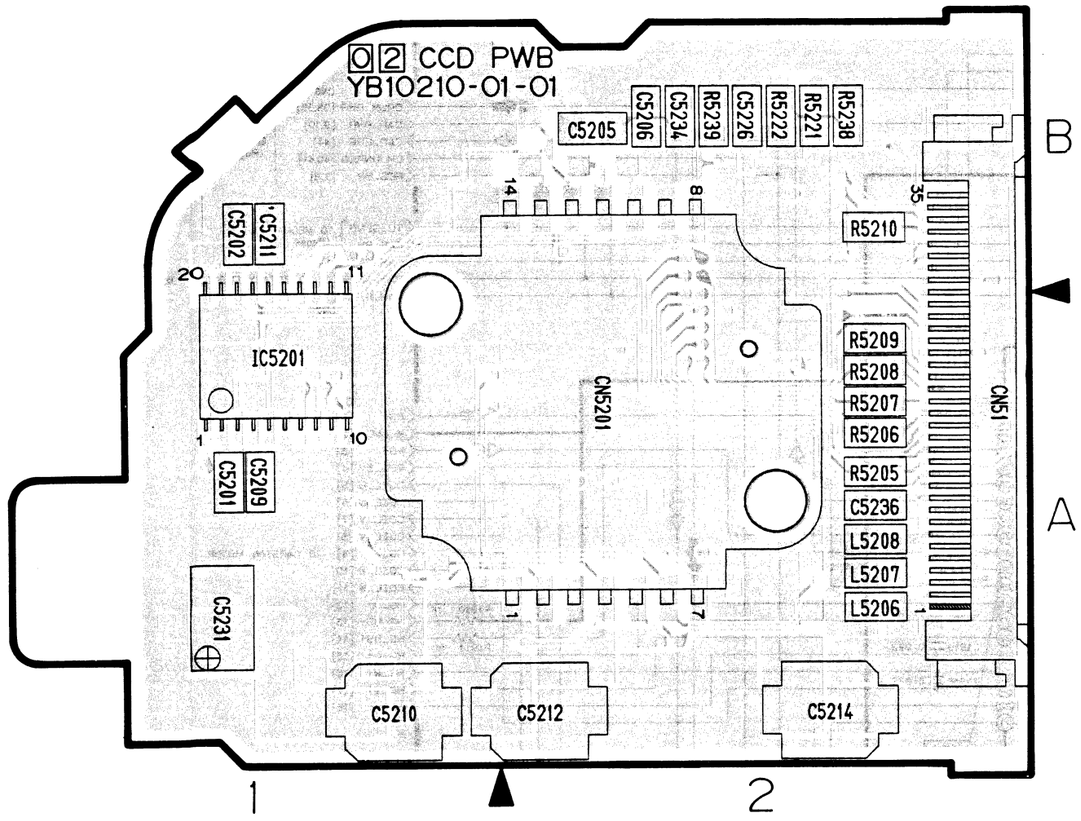
4.11 CCD SCHEMATIC DIAGRAM



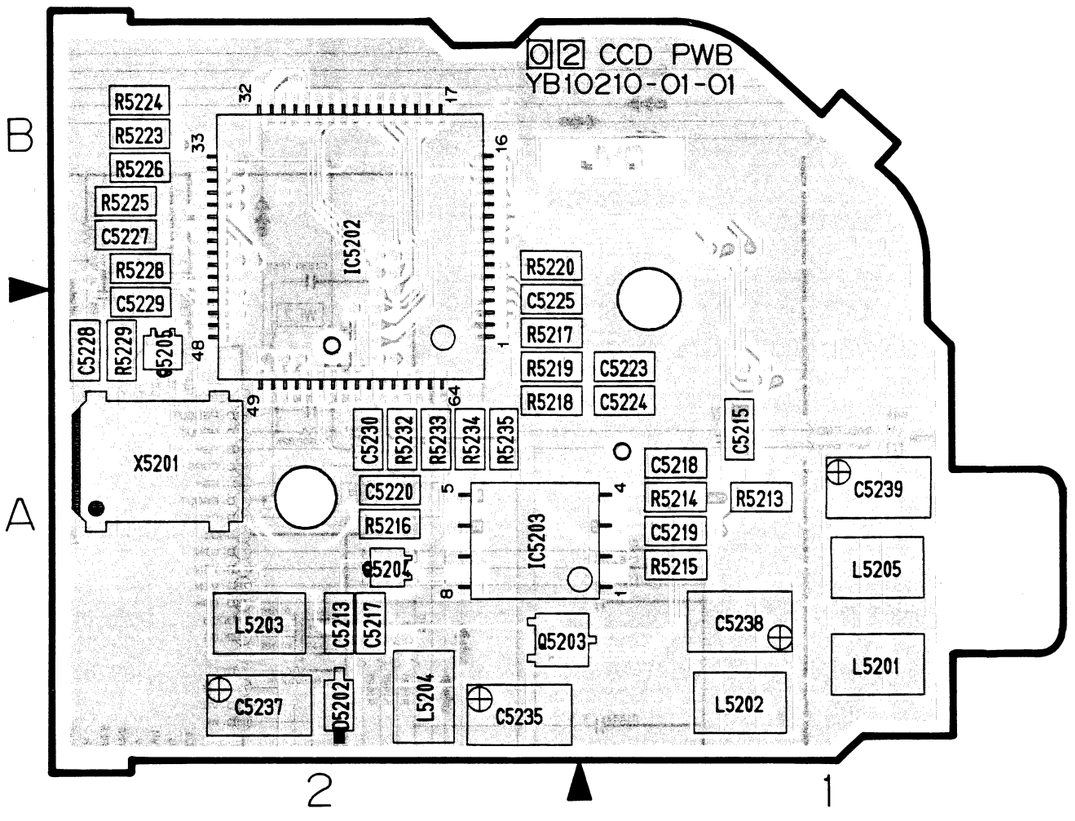
NOTE: For CCD waveforms, please refer to page 4–59.

4.12 CCD CIRCUIT BOARD

FOIL SIDE (B)



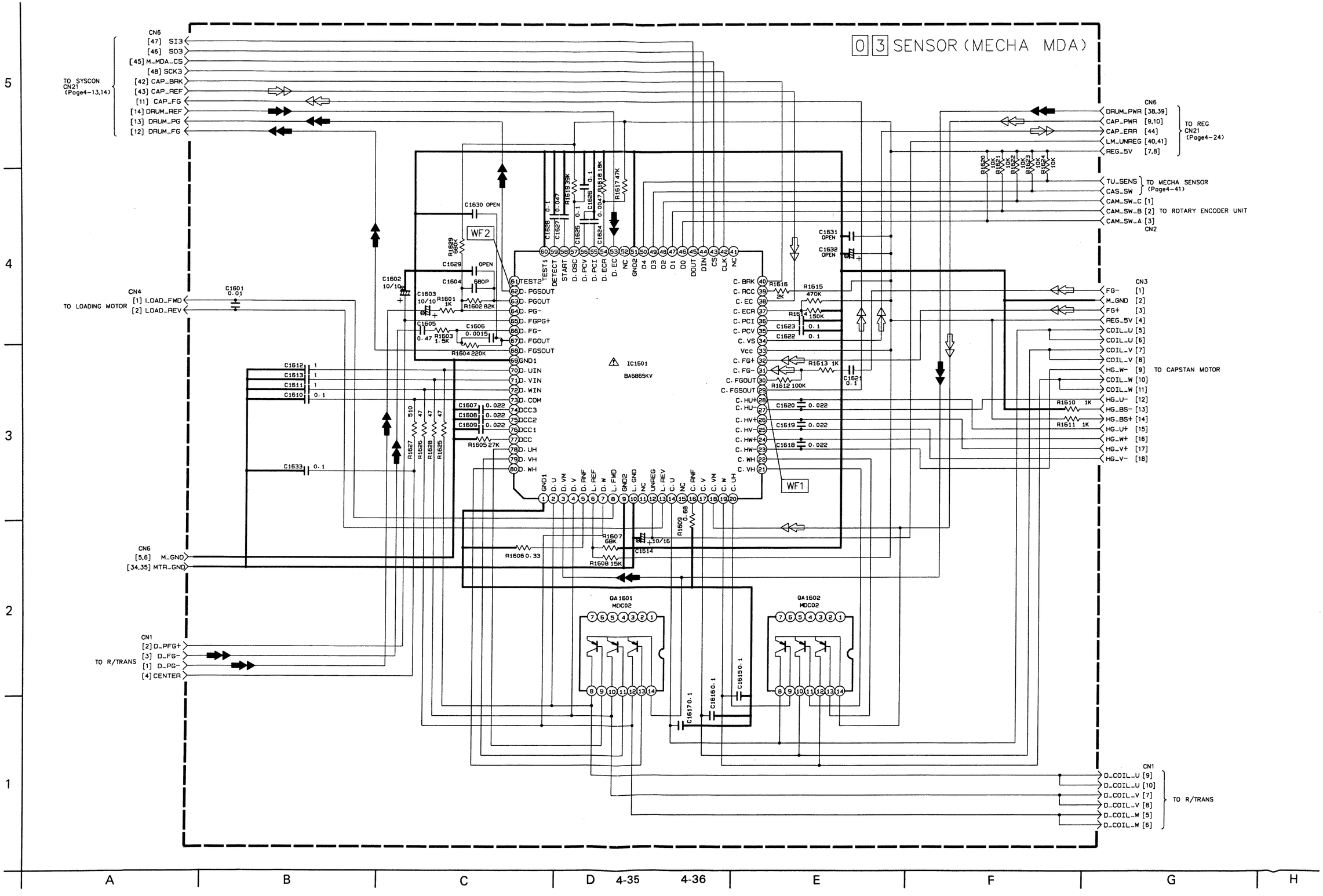
COMPONENT SIDE (A)



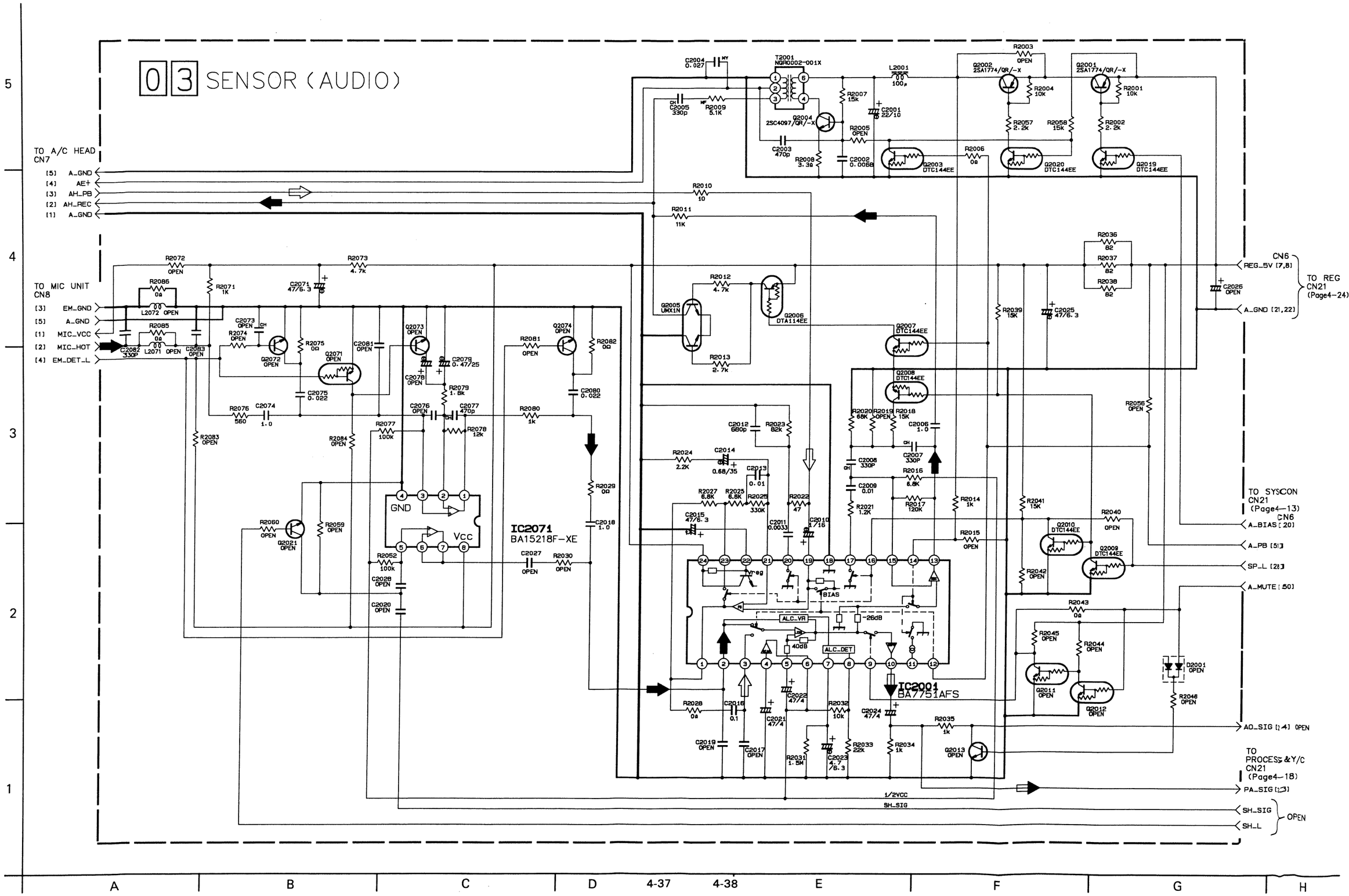
COMPONENT PARTS LOCATION GUIDE (CCD)

REF.No.	LOCATION		
CAPACITOR			
C5201	B	C	1A
C5202	B	C	1B
C5205	B	C	2B
C5206	B	C	2B
C5209	B	C	1A
C5210	B	C	1A
C5211	B	C	1B
C5212	B	C	2A
C5213	A	C	2A
C5214	B	C	2A
C5215	A	C	1A
C5217	A	C	2A
C5218	A	C	1A
C5219	A	C	1A
C5220	A	C	2A
C5223	A	C	1A
C5224	A	C	1A
C5225	A	C	2A
C5226	B	C	2B
C5227	A	C	2B
C5228	A	C	2A
C5229	A	C	2A
C5230	A	C	2A
C5231	B	C	2A
C5234	B	C	2B
C5235	A	C	2A
C5236	B	C	2A
C5237	A	C	2A
C5238	A	C	1A
C5239	A	C	1A
CONNECTOR			
CN51	B	C	2A
CN5201	B	C	2A
DIODE			
D5202	A	C	2A
IC			
IC5201	B	C	1A
IC5202	A	C	2B
IC5203	A	C	2A
COIL			
L5201	A	C	1A
L5202	A	C	1A
L5203	A	C	2A
L5204	A	C	2A
L5205	A	C	1A
L5206	B	C	2A
L5207	B	C	2A
L5208	B	C	2A
TRANSISTOR			
Q5203	A	C	2A
Q5204	A	C	2A
Q5205	A	C	2A
RESISTOR			
R5205	B	C	2A
R5206	B	C	2A
R5207	B	C	2A
R5208	B	C	2A
R5209	B	C	2A
R5210	B	C	2B
R5213	A	C	1A
R5214	A	C	1A
R5215	A	C	1A
R5216	A	C	2A
R5217	A	C	2A
R5218	A	C	2A
R5219	A	C	2A
R5220	A	C	2B
R5221	B	C	2B
R5222	B	C	2B
R5223	A	C	2B
R5224	A	C	2B
R5225	A	C	2B
R5226	A	C	2B
R5228	A	C	2B
R5229	A	C	2A
R5232	A	C	2A
R5233	A	C	2A
R5234	A	C	2A
R5235	A	C	2A
R5238	B	C	2B
R5239	B	C	2B
OTHER			
X5201	A	C	2A

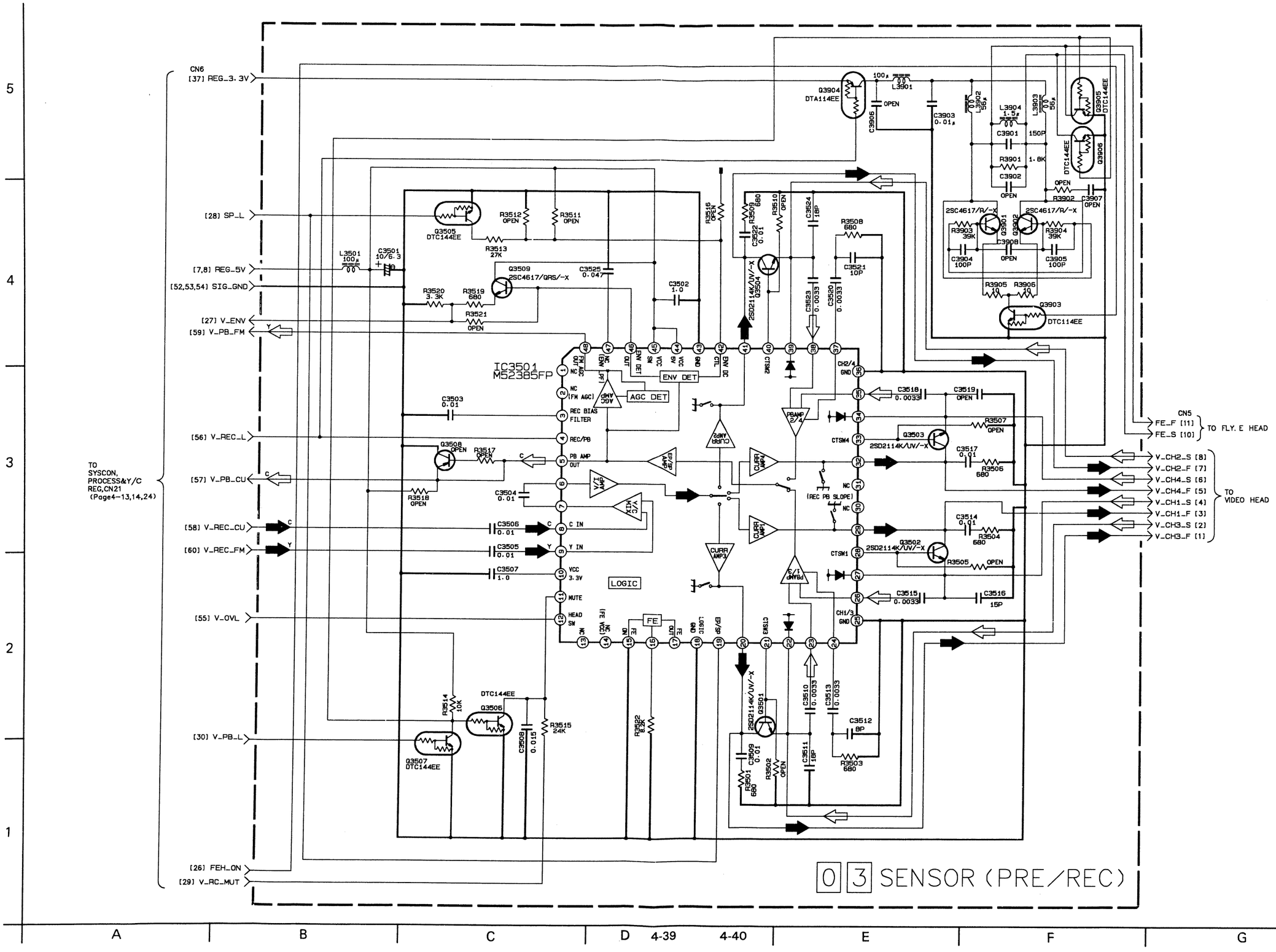
4.13 MECHA MDA SCHEMATIC DIAGRAM



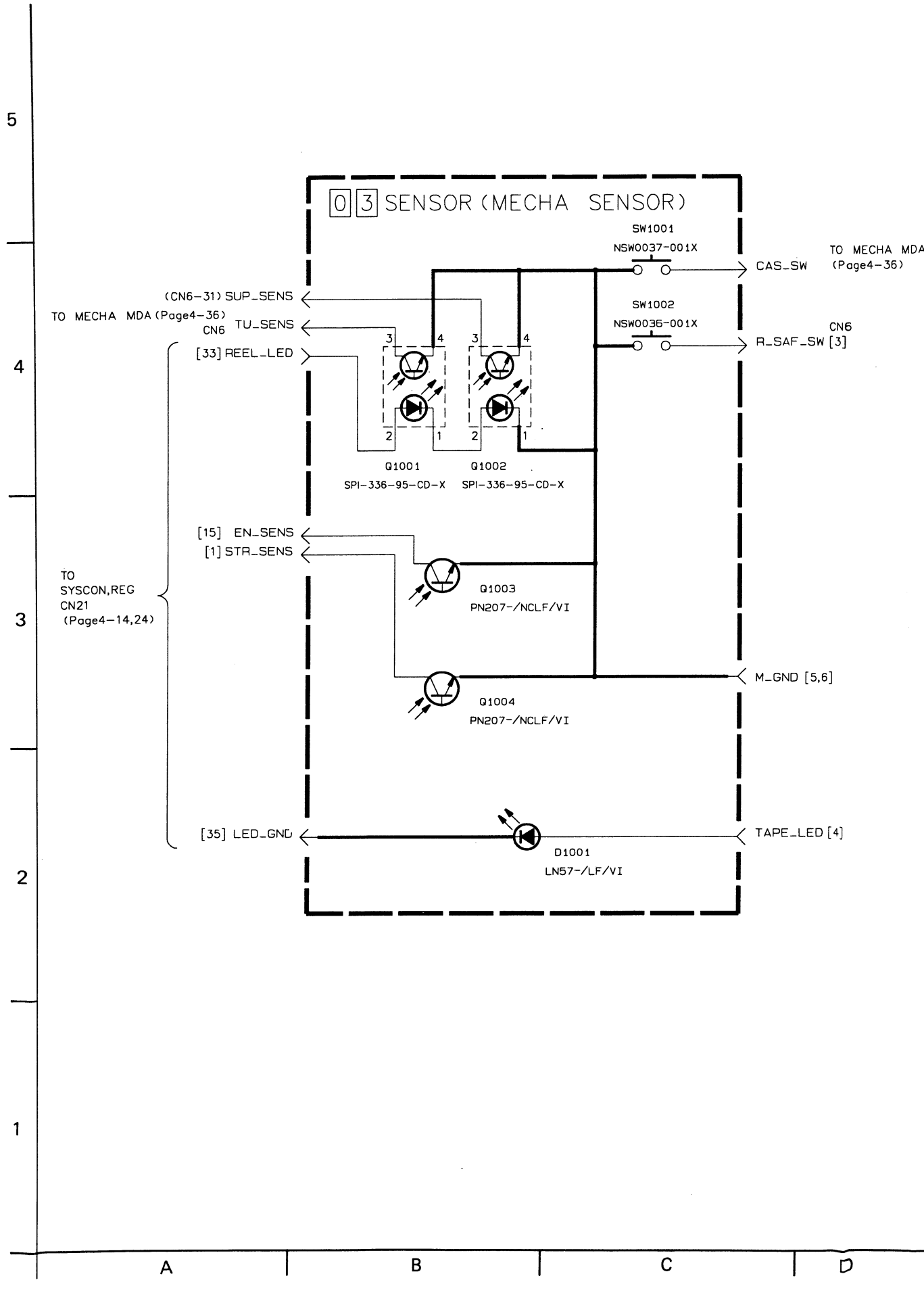
4.14 AUDIO SCHEMATIC DIAGRAM



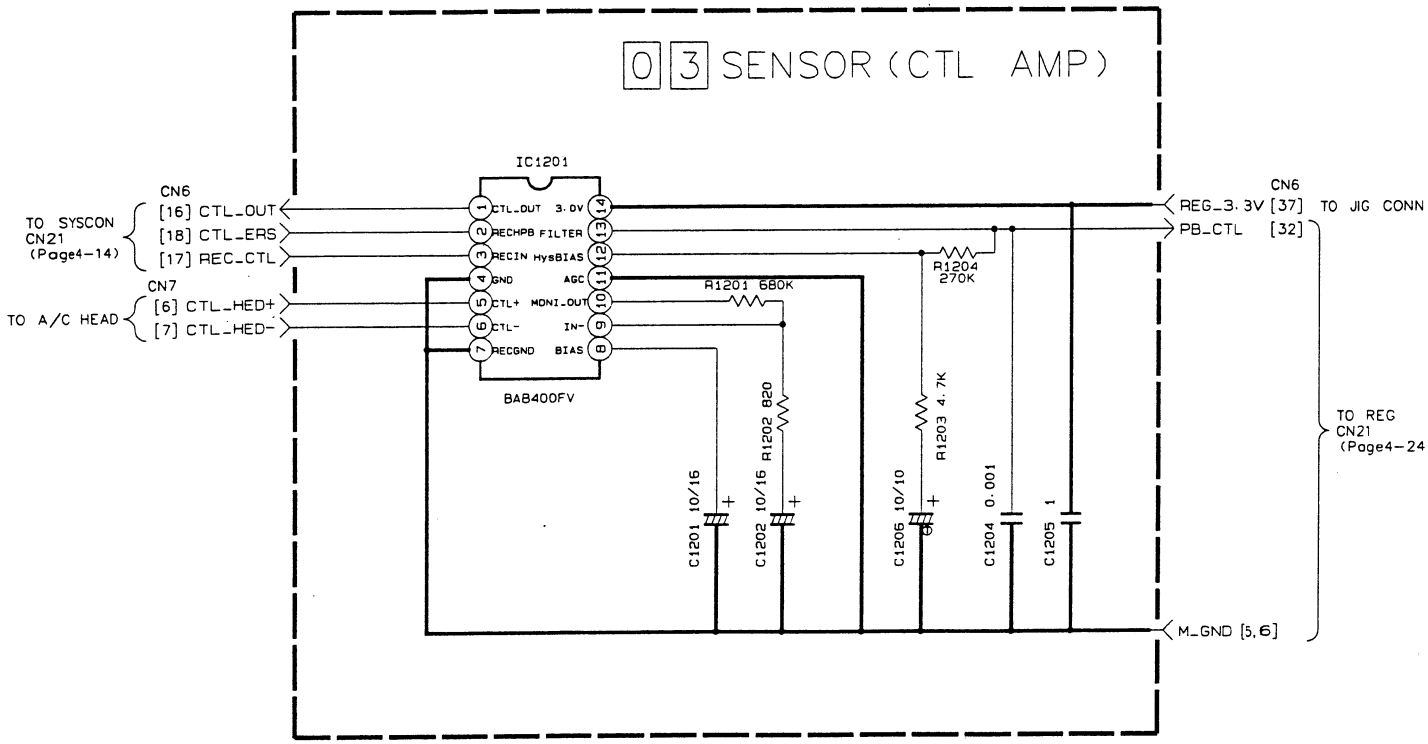
4.15 PRE/REC SCHEMATIC DIAGRAM



4.16 MECHA SENSOR SCHEMATIC DIAGRAM

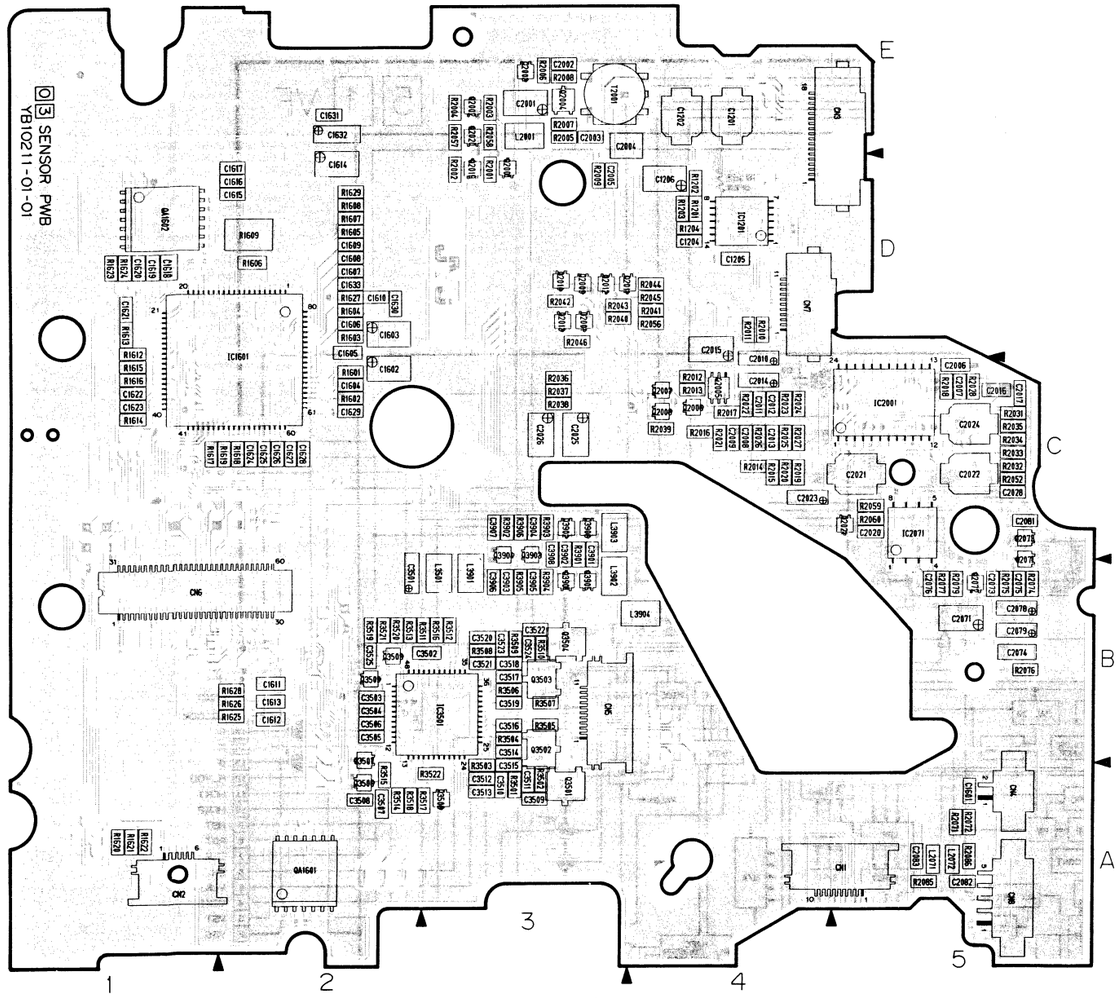


4.17 CTL AMP SCHEMATIC DIAGRAM

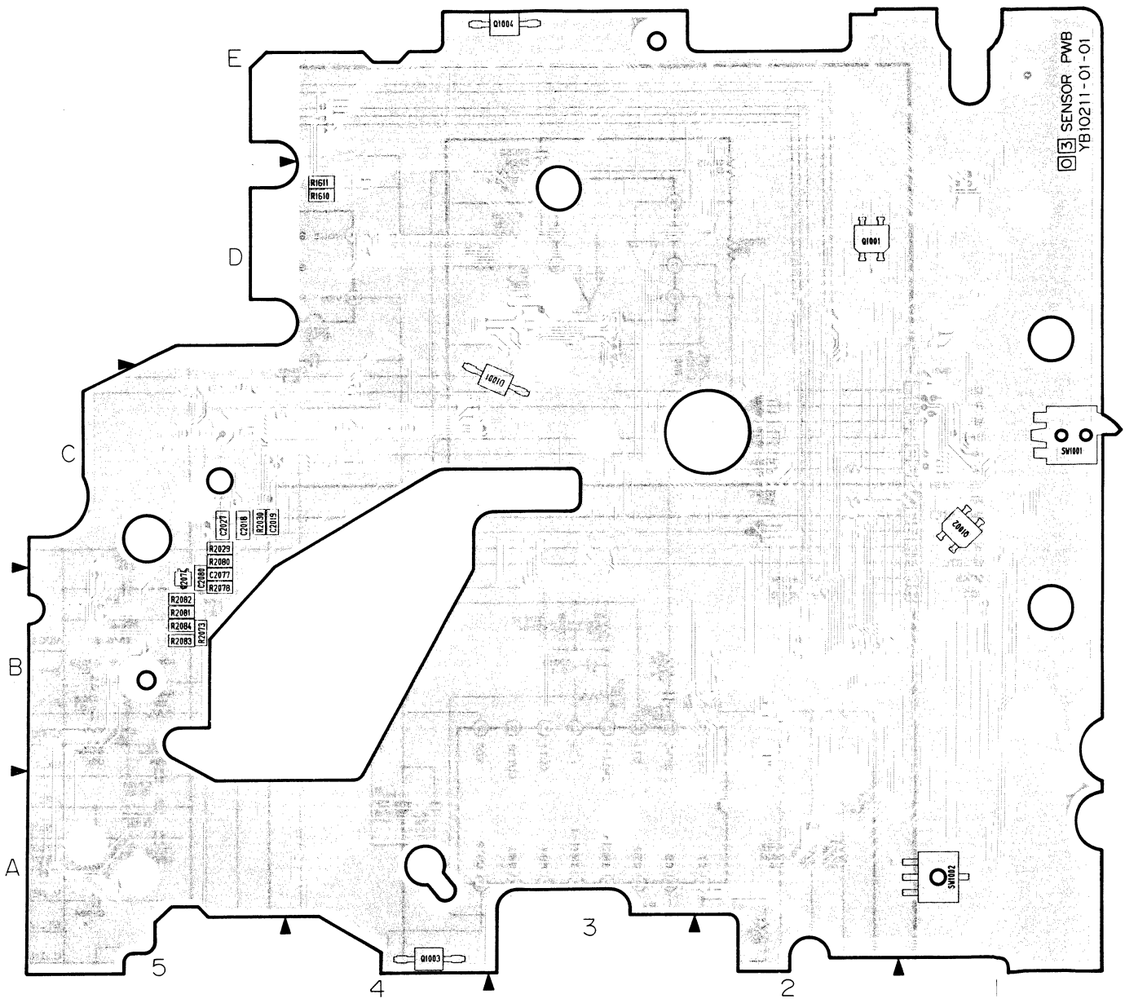


4.18 SENSOR CIRCUIT BOARD

FOIL SIDE (B)



COMPONENT SIDE (A)

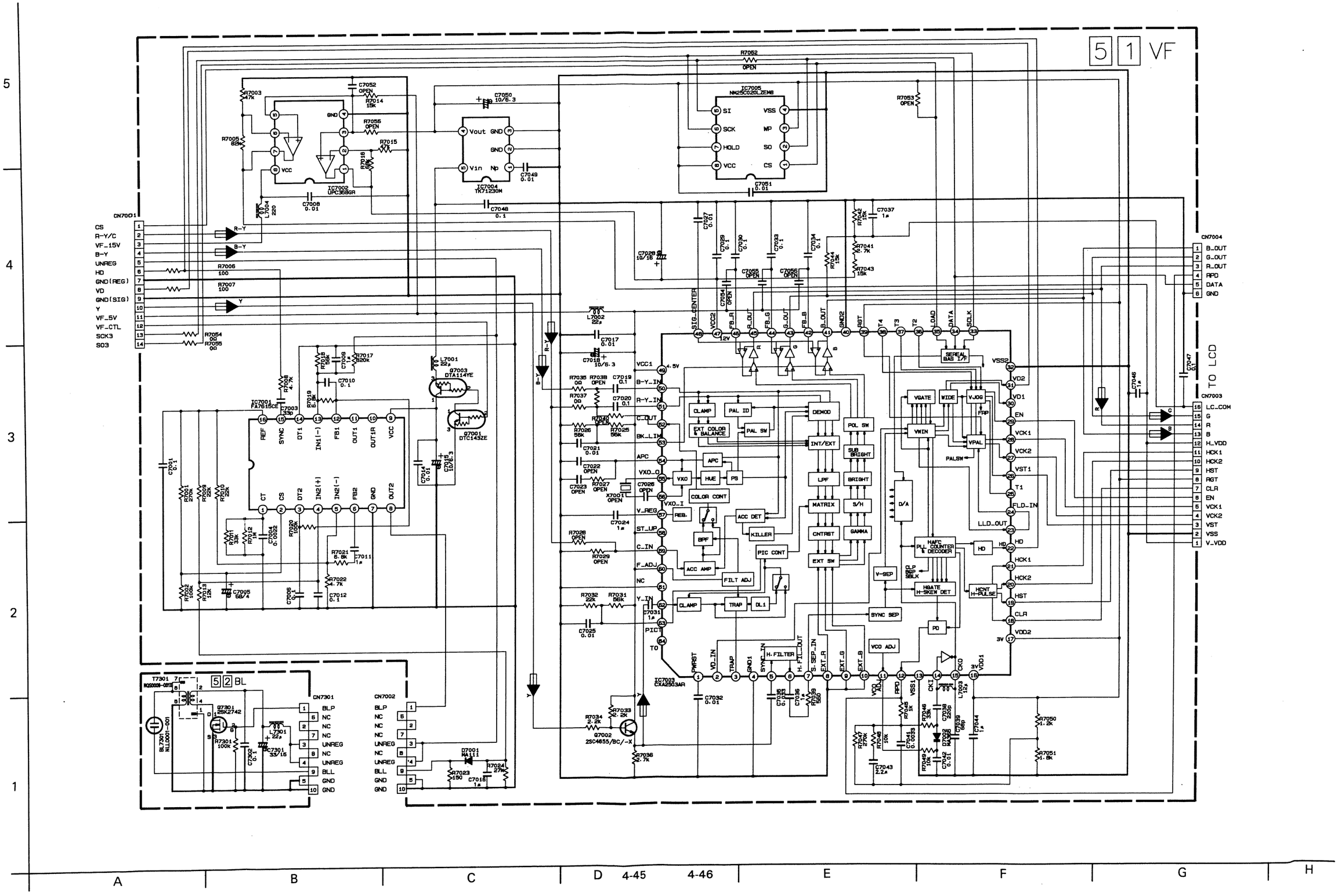


COMPONENT PARTS LOCATION GUIDE (SENSOR)

REF.No.	LOCATION		
CAPACITOR			
C1201	B	C	4E
C1202	B	C	4E
C1204	B	C	4D
C1205	B	C	4D
C1206	B	C	4D
C1601	B	C	5A
C1602	B	C	2C
C1603	B	C	2D
C1604	B	C	2C
C1605	B	C	2D
C1606	B	C	2D
C1607	B	C	2D
C1608	B	C	2D
C1609	B	C	2D
C1610	B	C	2D
C1611	B	C	2B
C1612	B	C	2B
C1613	B	C	2B
C1614	B	C	2D
C1615	B	C	2D
C1616	B	C	2D
C1617	B	C	2D
C1618	B	C	1D
C1619	B	C	1D
C1620	B	C	1D
C1621	B	C	1D
C1622	B	C	1C
C1623	B	C	1C
C1624	B	C	2C
C1625	B	C	2C
C1626	B	C	2C
C1627	B	C	2C
C1628	B	C	2C
C1629	B	C	2C
C1630	B	C	2D
C1631	B	C	2E
C1632	B	C	2E
C1633	B	C	2D
C2001	B	C	3E
C2002	B	C	3E
C2003	B	C	3E
C2004	B	C	3E
C2005	B	C	3D
C2006	B	C	5C
C2007	B	C	5C
C2008	B	C	4C
C2009	B	C	4C
C2010	B	C	4D
C2011	B	C	4C
C2012	B	C	4C
C2013	B	C	4C
C2014	B	C	4C
C2015	B	C	4D
C2016	B	C	5C
C2017	B	C	5C
C2018	A	C	5C
C2019	A	C	5C
C2020	B	C	5C
C2021	B	C	5C
C2022	B	C	5C
C2023	B	C	5B
C2024	B	C	5C
C2025	B	C	5C
C2026	B	C	3C
C2027	A	C	5C
C2028	B	C	5C
C2071	B	C	5B
C2073	B	C	5B
C2074	B	C	5B
C2075	B	C	5B
C2076	B	C	5B
C2077	A	C	5B
C2078	B	C	5B
C2079	B	C	5B
C2080	A	C	5B
C2081	B	C	5C
C2082	B	C	5A
C2083	B	C	5A
C3501	B	C	2B
C3502	B	C	3B
C3503	B	C	3B
C3504	B	C	3B
C3505	B	C	2B
C3506	B	C	2A
C3507	B	C	3A
C3508	B	C	3A
C3509	B	C	3A
C3510	B	C	3A
C3511	B	C	3A
C3512	B	C	3A
C3513	B	C	3B
C3514	B	C	3B
C3515	B	C	3B
C3516	B	C	3B
C3517	B	C	3B
C3518	B	C	3B
C3519	B	C	3B
C3520	B	C	3B
C3521	B	C	3B
C3522	B	C	3B
C3523	B	C	3B
C3524	B	C	3B
C3525	B	C	2B
C3901	B	C	3C
C3902	B	C	3B
C3903	B	C	3B
C3904	B	C	3B
C3905	B	C	3B
C3906	B	C	3B
C3907	B	C	3C
C3908	B	C	3C

REF.No.	LOCATION		
CONNECTOR			
CN1	B	C	5A
CN2	B	C	1A
CN3	B	C	4D
CN4	B	C	5A
CN5	B	C	3B
CN6	B	C	1B
CN7	B	C	4D
CN8	B	C	5A
DIODE			
D1001	A	D	3C
D2001	B	C	3D
IC			
IC1201	B	C	4D
IC1601	B	C	2D
IC2001	B	C	5C
IC2071	B	C	5C
IC3501	B	C	2B
COIL			
L2001	B	C	3E
L2071	B	C	5A
L2072	B	C	5A
L3501	B	C	3B
L3901	B	C	3B
L3902	B	C	3B
L3903	B	C	3C
L3904	B	C	4B
TRANSISTOR			
Q1001	A	C	2D
Q1002	A	C	1C
Q1003	A	D	4A
Q1004	A	D	3E
Q2001	B	C	3D
Q2002	B	C	3E
Q2003	B	C	3E
Q2004	B	C	3E
Q2005	B	C	4C
Q2006	B	C	4C
Q2007	B	C	4C
Q2008	B	C	4C
Q2009	B	C	3D
Q2010	B	C	3D
Q2011	B	C	4D
Q2012	B	C	3D
Q2013	B	C	3D
Q2019	B	C	3D
Q2020	B	C	3E
Q2021	B	C	5C
Q2071	B	C	5C
Q2072	B	C	5B
Q2073	B	C	5C
Q2074	A	C	5B
Q3501	B	C	3A
Q3502	B	C	3B
Q3503	B	C	3B
Q3504	B	C	3B
Q3505	B	C	2B
Q3506	B	C	2A
Q3507	B	C	2B
Q3508	B	C	3A
Q3509	B	C	2B
Q3901	B	C	3B
Q3902	B	C	3C
Q3903	B	C	3C
Q3904	B	C	3C
Q3905	B	C	3B
Q3906	B	C	3C
QA1601	B	C	2A
QA1602	B	C	1D
RESISTOR			
R1201	B	C	4D
R1202	B	C	4D
R1203	B	C	4D
R1204	B	C	4D
R1601	B	C	2C
R1602	B	C	2C
R1603	B	C	2D
R1604	B	C	2D
R1605	B	C	2D
R1606	B	C	2D
R1607	B	C	3B
R1608	B	C	2D
R1609	B	C	2D
R1610	A	C	4D
R1611	A	C	4D
R1612	B	C	1D
R1613	B	C	1D
R1614	B	C	1C
R1615	B	C	1C
R1616	B	C	1C
R1617	B	C	1C
R1618	B	C	2C
R1619	B	C	2C
R1620	B	C	1A
R1621	B	C	2A
R1622	B	C	1A
R1623	B	C	1D
R1624	B	C	1D
R1625	B	C	2B
R1626	B	C	2B
R1627	B	C	2D
R1628	B	C	2B
R1629	B	C	2D
R2001	B	C	3D
R2002	B	C	3D
R2003	B	C	3E
R2004	B	C	3E
R2005	B	C	3E
R2006	B	C	3E
R2007	B	C	3E
R2008	B	C	3D
R2009	B	C	4D
R2010	B	C	4D
R2011	B	C	4D
R2012	B	C	4C
R2013	B	C	4C
R2014	B	C	4C
R2015	B	C	4C
R2016	B	C	4C
R2017	B	C	4C
R2018	B	C	4C
R2019	B	C	4C
R2020	B	C	4C
R2021	B	C	4C
R2022	B	C	4C
R2023	B	C	4C
R2024	B	C	4C
R2025	B	C	4C
R2026	B	C	4C
R2027	B	C	4C
R2028	B	C	5C
R2029	A	C	5C
R2030	A	C	5C
R2031	B	C	5C
R2032	B	C	5C
R2033	B	C	5C
R2034	B	C	5C
R2035	B	C	5C
R2036	B	C	4C
R2037	B	C	3C
R2038	B	C	3C
R2039	B	C	4C
R2040	B	C	3D
R2041	B	C	4C
R2042	B	C	4C
R2043	B	C	4D
R2044	B	C	4D
R2045	B	C	4D
R2046	B	C	5C
R2047	B	C	5C
R2048	B	C	5C
R2049	B	C	5C
R2050	B	C	5C
R2051	B	C	5C
R2052	B	C	4D
R2053	B	C	4D
R2054	B	C	4D
R2055	B	C	4D
R2056	B	C	4D
R2057	B	C	4C
R2058	B	C	4C
R2059	B	C	4C
R2060	B	C	4C
R2061	B	C	4C
R2062	B	C	4C
R2063	B	C	4C
R2064	B	C	4C
R2065	B	C	4C
R2066	B	C	4C
R2067	B	C	4C
R2068	B	C	4C
R2069	B	C	4C
R2070	B	C	4C
R2071	B	C	4C
R2072	B	C	4C
R2073	A	C	5C
R2074	B	C	5C
R2075	B	C	5C
R2076	B	C	5C
R2077	B	C	5C
R2078	A	C	5C
R2079	B	C	5B
R2080	A	C	5C
R2081	A	C	5B
R2082	A	C	5B
R2083	A	C	5B
R2084	A	C	5B
R2085	B	C	5A
R2086	B	C	5A
R3501	B	C	3A
R3502	B	C	3A
R3503	B	C	3B
R3504	B	C	3B
R3505	B	C	3B
R3506	B	C	3B
R3507	B	C	3B
R3508	B	C	3B
R3509	B	C	3B
R3510	B	C	3B
R3511	B	C	3B
R3512	B	C	3B
R3513	B	C	2B
R3514	B	C	2A
R3515	B	C	2A
R3516	B	C	3B
R3517	B	C	3A
R3518	B	C	2A
R3519	B	C	2B
R3520	B	C	2B
R3521	B	C	2B
R3522	B	C	3A
R3901	B	C	3C
R3902	B	C	3C
R3903	B	C	3C
R3904	B	C	3B
R3905	B	C	3B
R3906	B	C	3C
OTHER			
SW1001	A	C	1C
SW1002	A	C	1A
T2001	B	C	3E

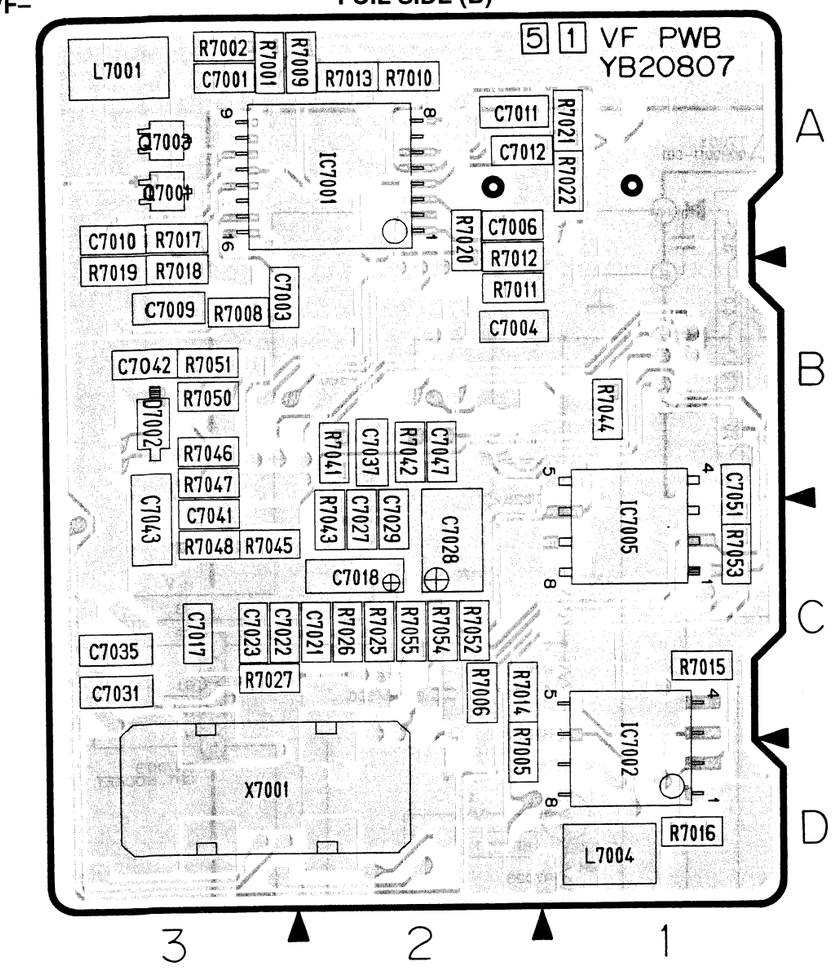
4.19 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM (FOR AX430U/AX730U)



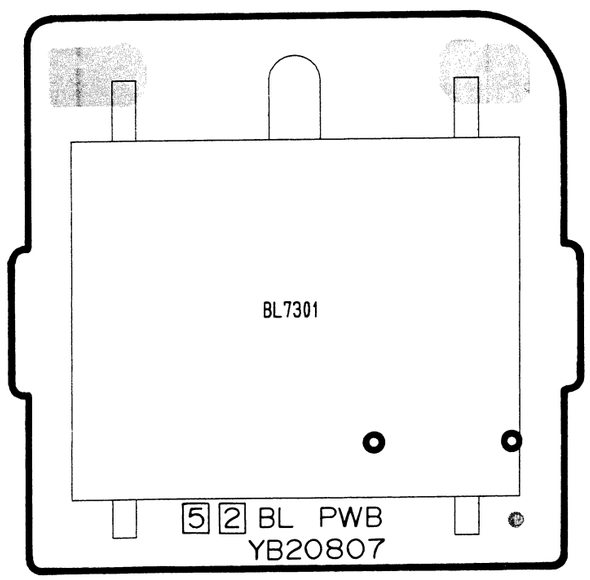
4.20 ELECTRONIC VIEWFINDER CIRCUIT BOARD (FOR AX430U/AX730U)

–VF–

FOIL SIDE (B)



–BL–

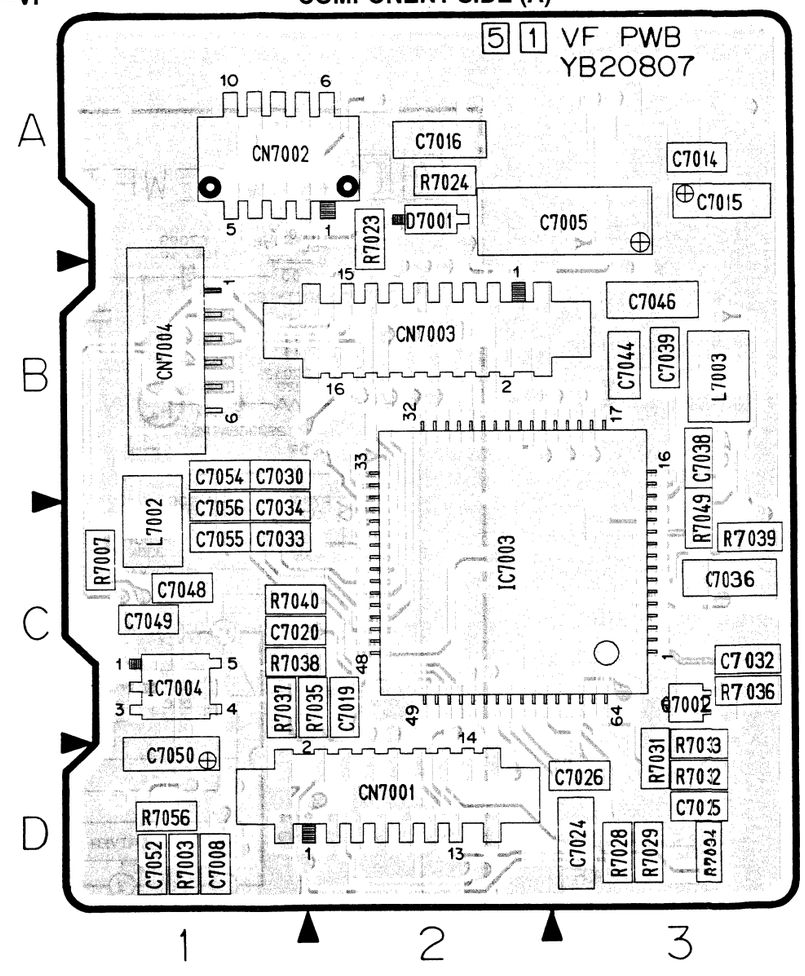


COMPONENT PARTS LOCATION GUIDE
(VF PWB)

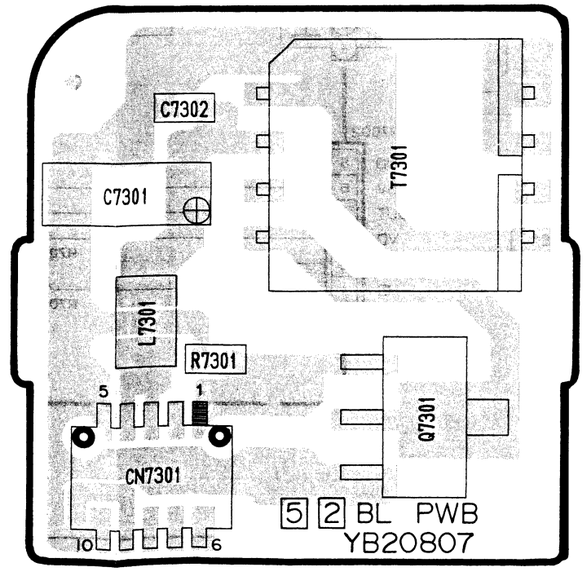
REF.No.	LOCATION			REF.No.	LOCATION		
CAPACITOR				**TRANSISTOR**			
C7001	B	C	3A	Q7001	B	C	3A
C7003	B	C	3B	Q7002	A	C	3C
C7004	B	C	2B	Q7003	B	C	3A
C7005	A	C	3A	**RESISTOR**			
C7006	B	C	2A				
C7008	A	C	1D	R7001	B	C	3A
C7009	B	C	3B	R7002	B	C	3A
C7010	B	C	3A	R7003	A	C	1D
C7011	B	C	2A	R7005	B	C	2D
C7012	B	C	2A	R7006	B	C	2C
C7014	A	C	3A	R7007	A	C	1C
C7015	A	C	3A	R7008	B	C	3B
C7016	A	C	2A	R7009	B	C	2A
C7017	B	C	3C	R7010	B	C	2A
C7018	B	C	2C	R7011	B	C	2B
C7019	A	C	2C	R7012	B	C	2A
C7020	A	C	1C	R7013	B	C	2A
C7021	B	C	2C	R7014	B	C	2C
C7022	B	C	3C	R7015	B	C	1C
C7023	B	C	3C	R7016	B	C	1D
C7024	A	C	3D	R7017	B	C	3A
C7025	A	C	3D	R7018	B	C	3B
C7026	A	C	3D	R7019	B	C	3B
C7027	B	C	2C	R7020	B	C	2A
C7028	B	C	2C	R7021	B	C	1A
C7029	B	C	2C	R7022	B	C	1A
C7030	A	C	1B	R7023	A	C	2A
C7031	B	C	3C	R7024	A	C	2A
C7032	A	C	3C	R7025	B	C	2C
C7033	A	C	1C	R7026	B	C	2C
C7034	A	C	1C	R7027	B	C	3C
C7035	B	C	3C	R7028	A	C	3D
C7036	A	C	3C	R7029	A	C	3D
C7037	B	C	2B	R7031	A	C	3D
C7038	A	C	3B	R7032	A	C	3D
C7039	A	C	3B	R7033	A	C	3D
C7041	B	C	3C	R7034	A	C	3D
C7042	B	C	3B	R7035	A	C	2C
C7043	B	C	3C	R7036	A	C	3C
C7044	A	C	3B	R7037	A	C	1C
C7046	A	C	3B	R7038	A	C	1C
C7047	B	C	2B	R7039	A	C	3C
C7048	A	C	1C	R7040	A	C	1C
C7049	A	C	1C	R7041	B	C	2B
C7050	A	C	1D	R7042	B	C	2B
C7051	B	C	1B	R7043	B	C	2C
C7052	A	C	1D	R7044	B	C	1B
C7054	A	C	1B	R7045	B	C	3C
C7055	A	C	1C	R7046	B	C	3B
C7056	A	C	1C	R7047	B	C	3B
CONNECTOR				R7048	B	C	3C
				R7049	A	C	3C
CN7001	A	C	2D	R7050	B	C	3B
CN7002	A	C	2A	R7051	B	C	3B
CN7003	A	C	2B	R7052	B	C	2C
CN7004	A	C	1B	R7053	B	C	1C
DIODE				R7054	B	C	2C
				R7055	B	C	2C
D7001	A	C	2A	R7056	A	C	1D
D7002	B	C	3B	**OTHER**			
IC							
				X7001	B	C	3D
IC7001	B	C	2A				
IC7002	B	C	1D				
IC7003	A	C	2C				
IC7004	A	C	1C				
IC7005	B	C	1C				
COIL							
L7001	B	C	3A				
L7002	A	C	1C				
L7003	A	C	3B				
L7004	B	C	1D				

–VF–

COMPONENT SIDE (A)

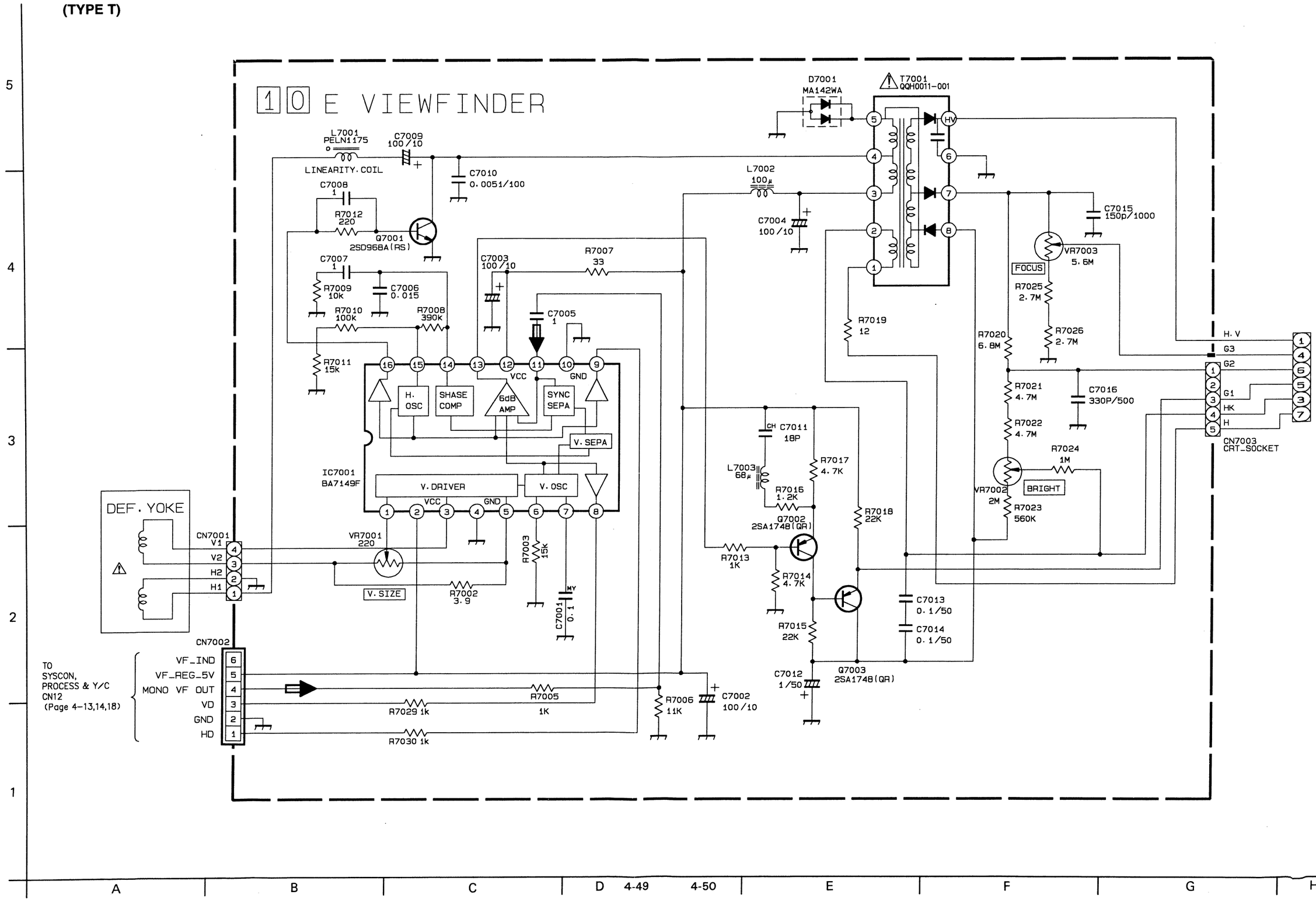


–BL–



4.21 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM (FOR AX230U)

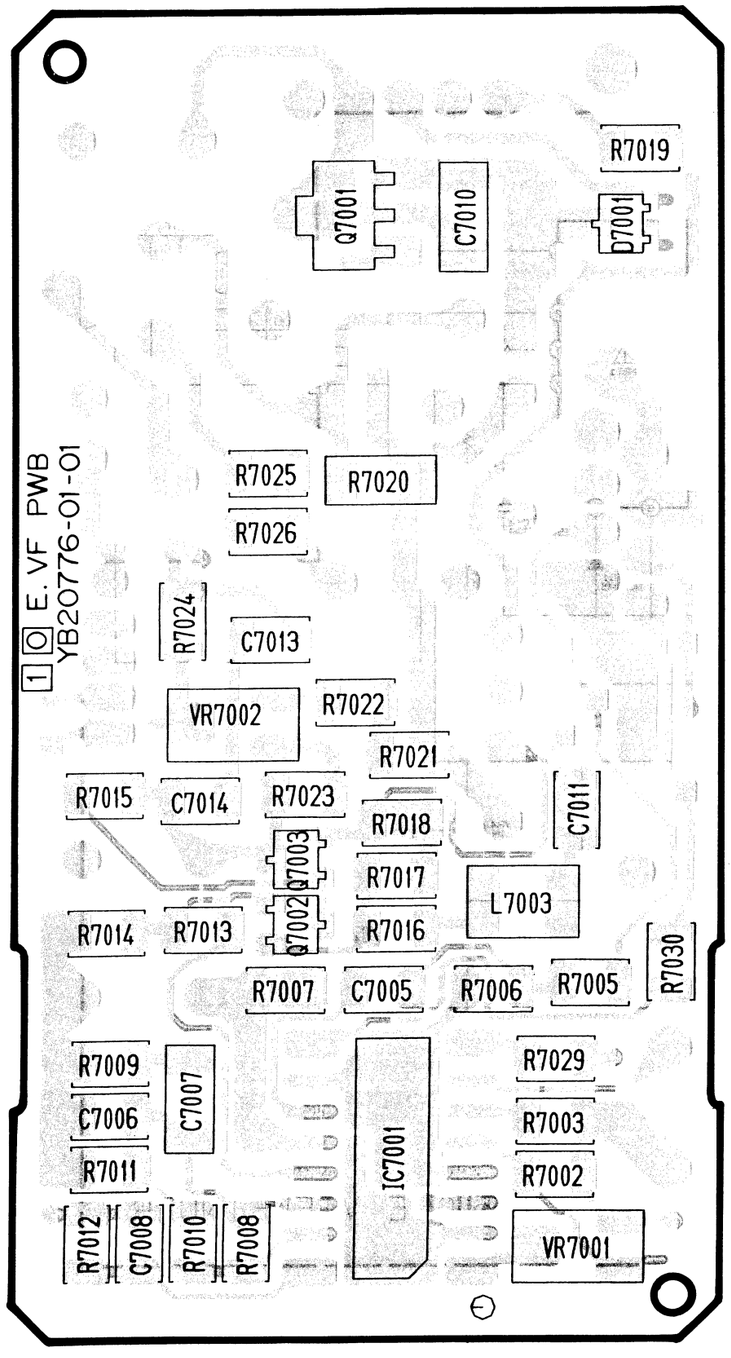
(TYPE T)



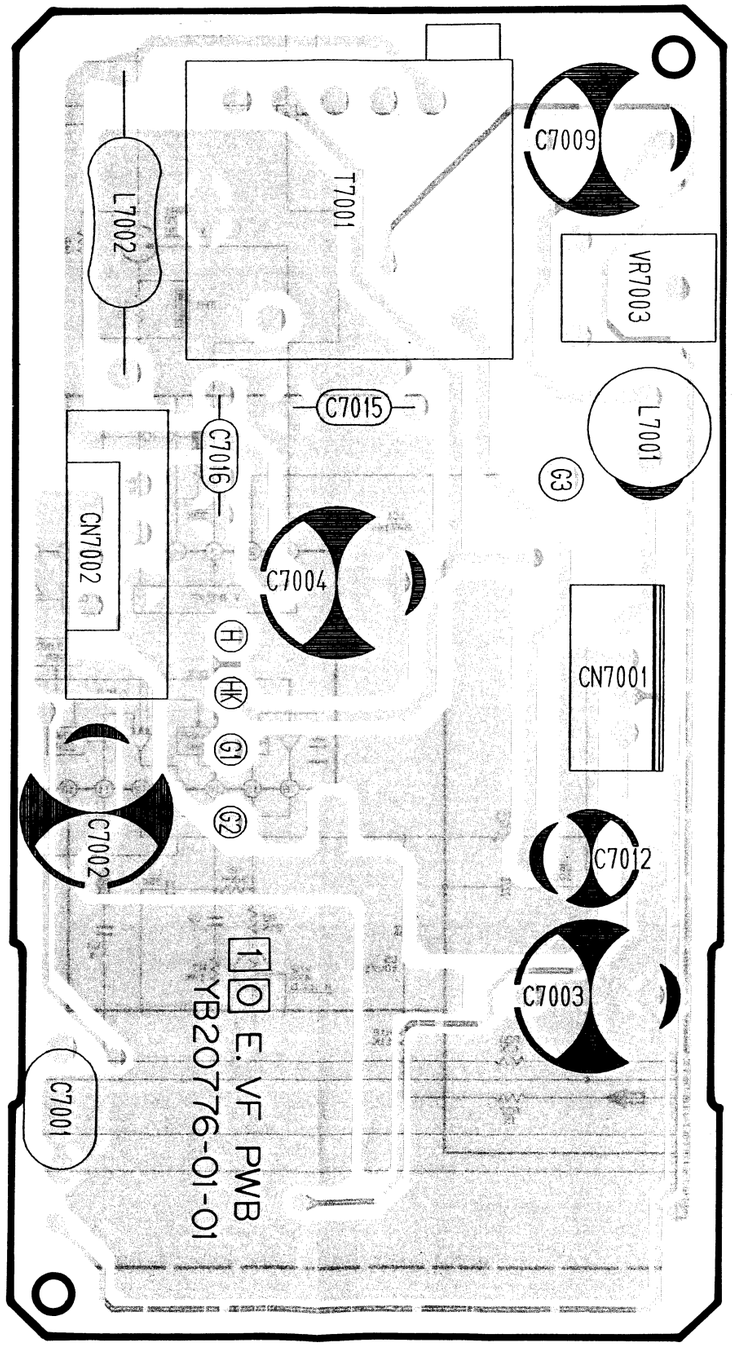
4.22 ELECTRONIC VIEWFINDER CIRCUIT BOARD (FOR AX230U)

(TYPE T)

FOIL SIDE (B)

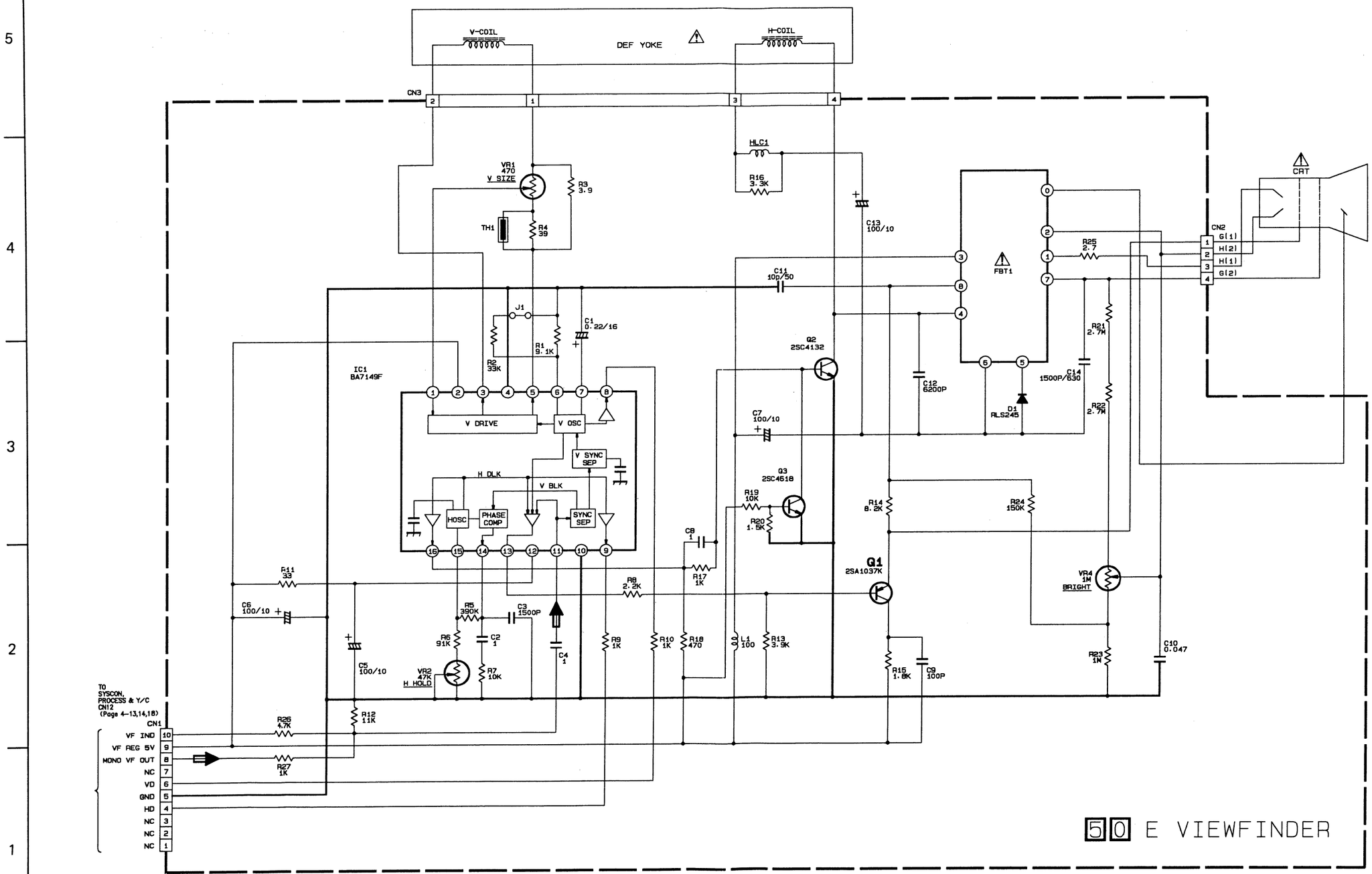


COMPONENT SIDE (A)



4.23 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM (FOR AX230U)

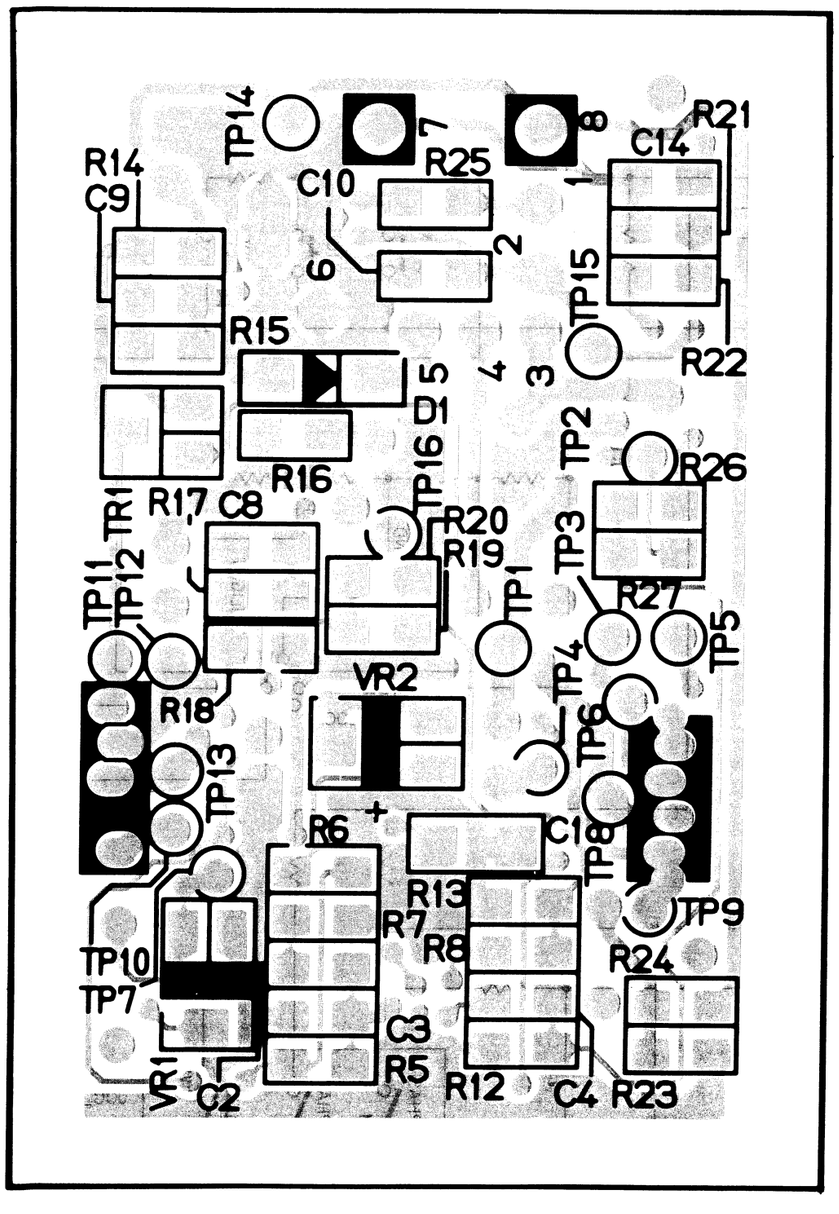
(TYPE M)



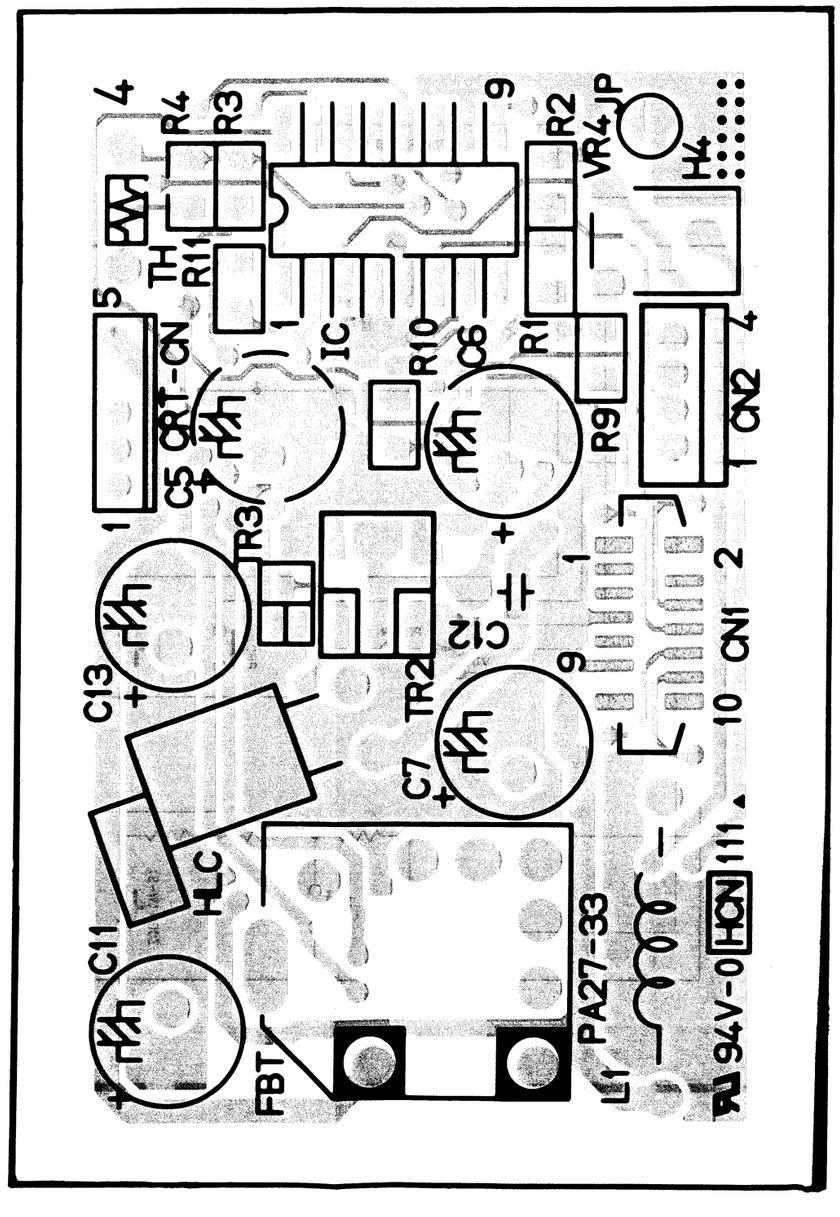
4.24 ELECTRONIC VIEWFINDER CIRCUIT BOARD (FOR AX230U)

(TYPE M)

FOIL SIDE (B)

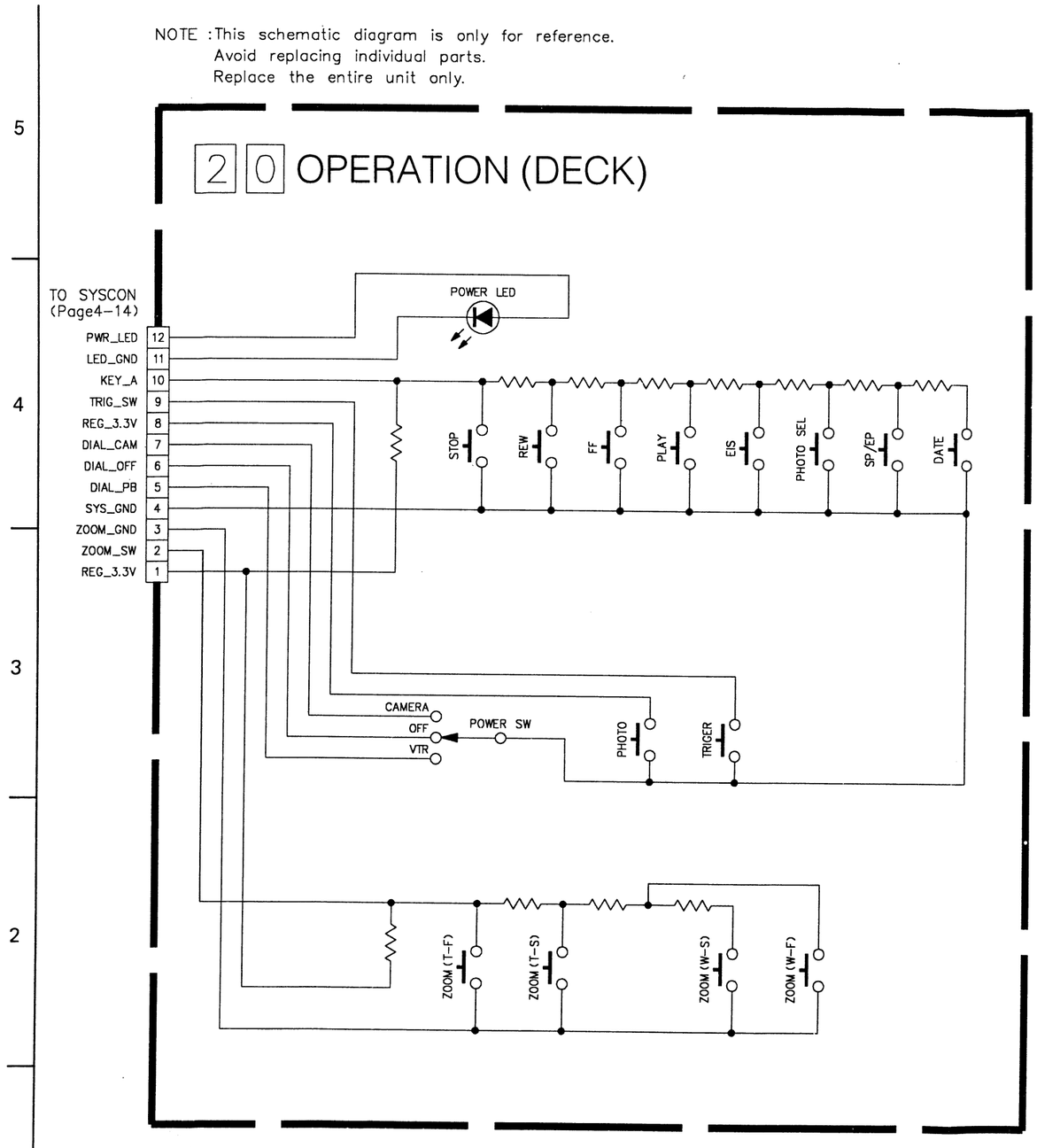


COMPONENT SIDE (A)

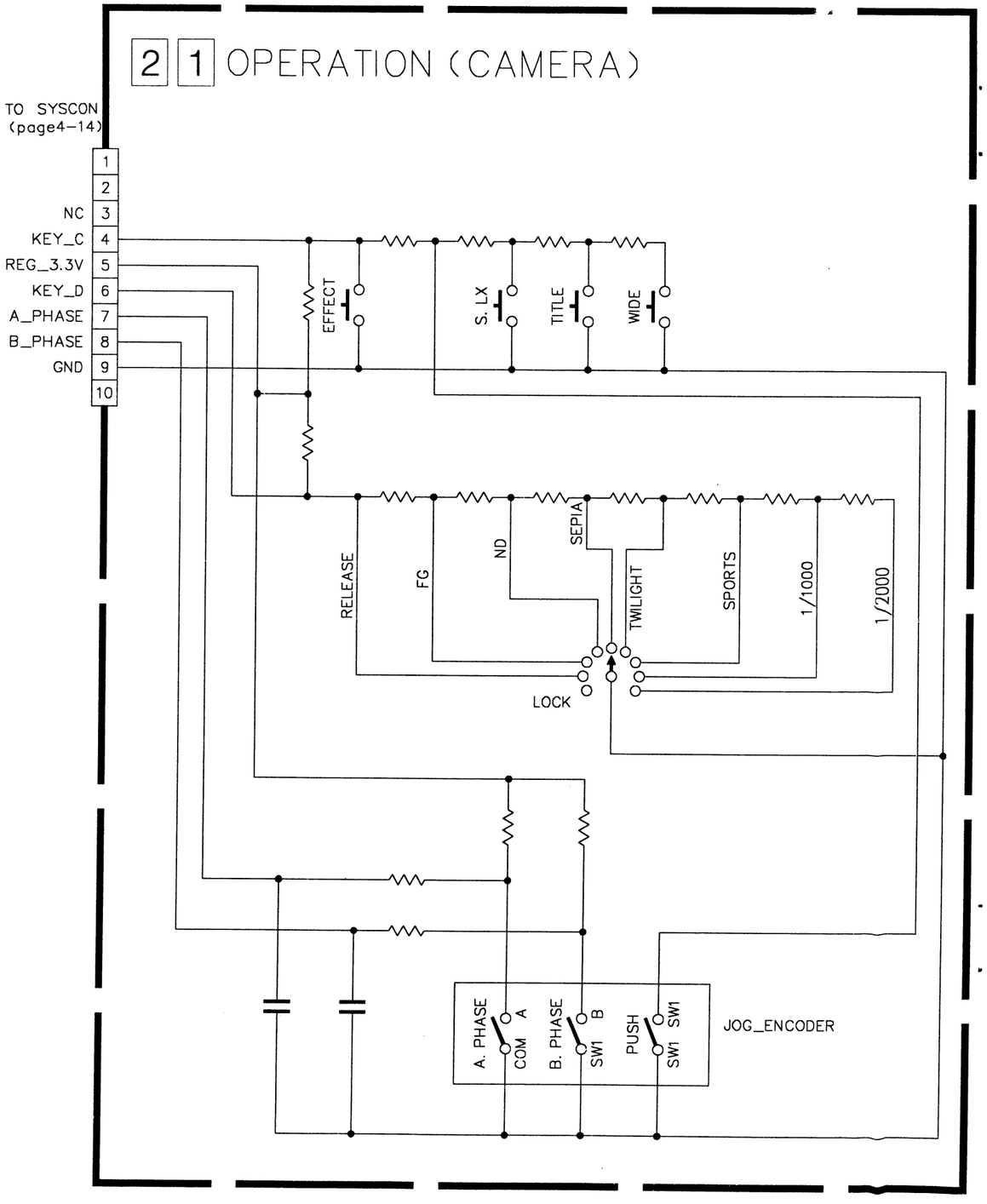


4.25 OPERATION (DECK) AND OPERATION (CAMERA) SCHEMATIC DIAGRAMS

NOTE : This schematic diagram is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.



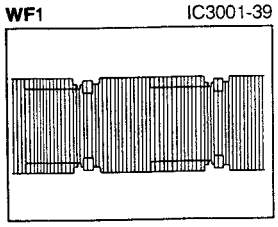
NOTE : This schematic diagram is only for reference
Avoid replacing individual parts.
Replace the entire unit only.



4.26 WAVEFORMS

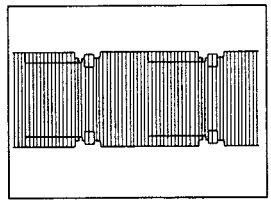
– PROCESS & Y/C –

WF1 IC3001-39



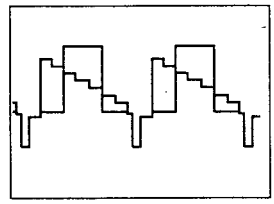
REC0.12 Vp-p
20mV/10µs/DIV

WF2 IC3001-42



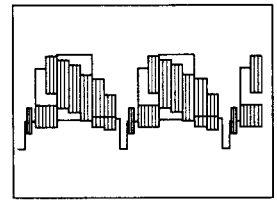
PB 0.28 Vp-p
20mV/1msec/DIV

WF3 IC3001-48



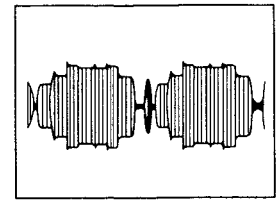
REC 0.1 Vp-p
20mV/10µsec/DIV

WF4 IC3001-50



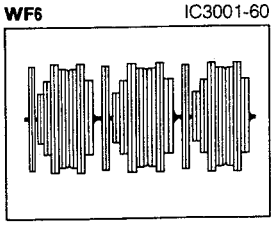
REC 0.23 Vp-p
50mV/10µsec/DIV

WF5 IC3001-57



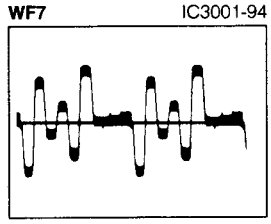
PB 0.32 Vp-p
10mV20µs/DIV

WF6 IC3001-60



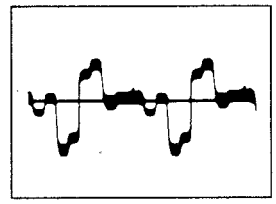
REC 0.36Vp-p
10mV/10µsec/DIV

WF7 IC3001-94



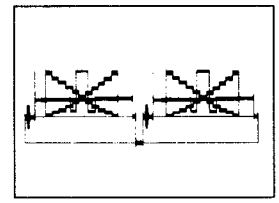
EE 0.72 Vp-p
20mV/10µsec/DIV

WF8 IC3001-96



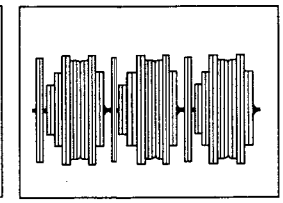
EE 0.72Vp-p
20mV/10µsec/DIV

WF9 IC3001-116



EE 1 Vp-p
20mV/10µsec/DIV

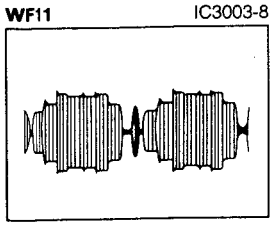
WF10 IC3003-6



REC 0.62 Vp-p
PB 0.24 BP-P
20mV/10µsec/DIV

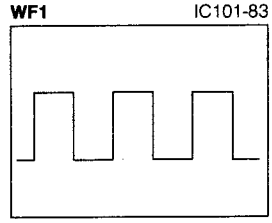
– SYSCON –

WF11 IC3003-8



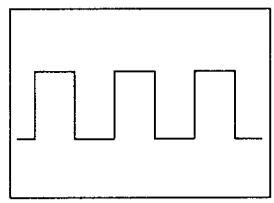
REC 1.2 Vp-p
PB 0.16VP-P
10mV/20µsec/DIV

WF1 IC101-83



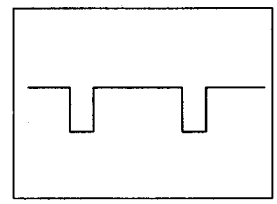
REC/PB 30 Vp-p
0.1V/1msec/DIV

WF2 IC101-85



REC/PB 3 Vp-p
0.1V/0.1msec/DIV

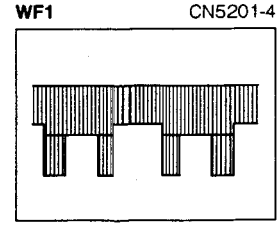
WF3 IC101-87



REC/PB 3 Vp-p
0.1V/5ms/DIV

– CCD –

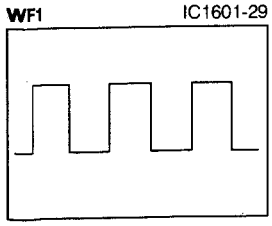
WF1 CN5201-4



EE 1.2 Vp-p
20mV/2µsec/DIV

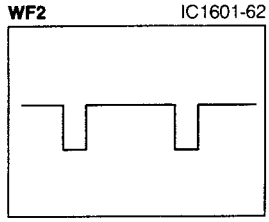
– MECHA MDA –

WF1 IC1601-29



REC/PB 3.1 Vp-p
0.1V/0.1msec/DIV

WF2 IC1601-62



REC/PB 3 Vp-p
0.1V/5msec/DIV

4.27 VOLTAGE CHARTS

<SYSCON>

MODE PIN NO.	REC	PLAY
IC101		
1	3.1	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0.5	0.5
11	0	0
12	0	3.1
13	3.1	0
14	0	2.4
15	0	3.1
16	0	0
17	0	3
18	0	0
19	0	0
20	1.3	0
21	0	0
22	0	0
23	0	0
24	0	0
25	0	0
26	0	0
27	0	3.1
28	0	0.4
29	0	0.4
30	0	0.4
31	0	0.4
32	0	0.5
33	0	0.4
34	1.6	0.4
35	0	0.7
36	3.1	3.1
37	0	0
38	0	0
39	3.1	3.1
40	3.1	3.1
41	3.1	3.1
42	0	0
43	2.1	2.3
44	0	0
45	0	3.1
46	0	0
47	0	0
48	1.9	0.9
49	0	0
50	0	0
51	1.5	1.7
52	0	1.5
53	2.2	2.2
54	1.8	1.8
55	0	0
56	3.1	3.1
57	1.5	1.5
58	0	0
59	0	0
60	0	3.1
61	1.5	0.6
62	1.5	0.4
63	0	0
64	3.1	3.1
65	3.1	3.1
66	0	0
67	0	0
68	2.8	2.8
69	0	0
70	0.7	0
71	1.5	1.5
72	3.1	3.1
73	0	0
74	0	3.1
75	3.1	3.1
76	0	0
77	3	3
78	-	-
79	0.5	0
80	2.7	0
81	2.7	0
82	0	0
83	1.6	0
84	0	0
85	0	1.6
86	1.5	0
87	1.8	2.9
88	3.1	0
89	0.7	0.7
90	0	0
91	0	0
92	3.1	0
93	1.6	0
94	1.6	0.5
95	1.7	0
96	1.9	0
97	1.1	2
98	0	0
99	3.1	3.1
100	3.1	3.1
101	3.1	3.1
102	3.1	3.1
103	2.8	2.8
104	2.8	2.8
105	2.8	2.8
106	0.8	0.4
107	2.9	0
108	1.1	0.4
109	0	3.1
110	0	0
111	0	0
112	0	0
113	0	0
114	0	0
115	0	0
116	0	0
117	0	0
118	0	0
119	0	0
120	0	0
121	0	0
122	0	0
123	3.1	3.1
124	2.9	0
125	0	0
126	0.8	0.6
127	0.8	0.6
128	0	3.1
129	0	0
130	0	0
131	3.1	3.1
132	1.4	1.2
133	3.1	3.1
134	2.7	2.7
135	3.1	0
136	-1.9	-1.9
137	3.1	3.1
138	0	0
139	0	0
140	0	0
141	0	0
142	0	0
143	3.1	3.1
144	0	0
IC102		
1	3.2	3.2
2	0	0
3	6.8	6.8
IC103		
1	0	0
2	0	0
3	0	0
4	3.1	3.1
5	3.1	3.1
IC104		
1	0	0
2	3.1	3.1
3	0	0
4	0	0
5	0	0
6	0.5	0
7	0	0
8	3	3
IC105		
1	0	0
2	0	0
3	3	0
4	0	0
5	0	0
6	3.1	3.1
7	3.1	3.1
8	3.1	3.1
IC106		
1	1.7	1
2	2.3	0.5
3	1.7	1.1
4	2.9	2.9
5	1.1	0.5
6	0	0
7	0	0
8	0	0
9	0	0.5
10	1.3	1.3
11	2	2.1
12	2	0
13	1.9	2
14	2	2.1
15	0	0
16	3.1	3.2
IC108		
1	0	0
2	0.6	0.7
3	1.3	0
4	0	0
5	3	0
6	0	0
7	0	0
8	3.1	3.1
9	3.1	3.1
10	0	0
11	0	0
12	3.1	3.1
13	3.1	3.1
14	0	0
15	0	0
16	3	3
17	3.1	3.1
18	3.1	3.1
19	3.1	3.1
20	3.1	3.2
21	2.9	2.9
22	0	0
23	3.1	3.1
24	0	0
25	0	0
26	0	0
27	0	0
28	4.8	0
29	4.8	0
30	0	0
31	0	0
32	0	0
33	2	0
34	0	0
35	1	0
36	0.4	0
37	4.8	4.8
38	0	0
39	4	0
40	0	3.5
41	0	0
42	3.1	0
43	4.8	4.8
44	3.1	0
45	0.7	0
46	1.9	0
47	0.4	0
48	4.5	1.2
IC109		
1	0	0
2	2.4	2.4
3	1.5	1.2
4	3	3.1
5	0	3.1
6	0	0
7	1.2	1.2
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	2.8	0
20	0	0
IC110		
1	3.1	3.1
2	3.1	3.1
3	3.1	3.1
4	0	0
5	3.1	3.1
6	0	0
7	0	0
8	3.1	3.1
Q101		
E	5.9	6.8
C	6.6	6.7
B	6.6	6
Q102		
E	3.1	0
C	0	0
B	0	3.1
Q103		
E	3.1	3.1
C	3	-0.4
B	0	3.2
Q104		
E	2.6	0
C	0	3.2
B	0	0
Q107		
E	0	0
C	0.8	0.7
B	0	0
Q108		
E	0.6	0
C	4.8	4.8
B	0	4.8
Q109		
E	0	0
C	6	6.2
B	0	0
Q110		
E	6.6	6.7
C	0	0
B	6.7	6.8
Q111		
E	0	0
C	0	0
B	3.1	3.1
Q112		
E	4.8	4.8
C	-0.4	4.8
B	0	0

<PROCESS & Y/C>

MODE PIN NO.	REC	PLAY
IC3001		
1	1.7	0
2	2.3	0.4
3	1.9	3.8
4	3	3.5
5	1.8	1.9
6	2.1	3.7
70	0	
8	1.9	2.4
9	2.7	3
10	1.7	1.7
11	1.7	1.7
12	4.6	4.7
13	2.5	2.3
14	1.9	1.8
15	1.9	0
16	2.5	1.5
17	3.2	1.1
18	1	1
19	1	1.8
20	4.7	4.7
21	1.8	1.9
22	4	3.4
23	2.1	2.1
24	0	0
25	0.4	0.4
26	0.4	2.2
27	2.1	2.1
28	1.9	2.1
29	0.4	2
30	3.8	2.6
31	0.8	2.2
32	0	2.2
33	2.1	0.9
34	2	2.6
35	2	2.6
36	0	1.1
37	2.3	3.1
38	1.9	0
39	3.3	3.8
40	4.7	4.7
41	1.9	1.8
42	0	2.6
43	0	0
44	2.5	2.3
45	0	0
46	2	2
47	2.4	2.4
48	2.4	2.3
49	0	0
51	4.8	4.8
52	0	0
53	0	0
54	1.4	1.4
55	0	0
56	1.6	1.9
57	1.7	1.7
58	4.7	4.6
59	2.2	2.7
60	2.5	2.6
61	1.1	2.1
62	3	3
63	0.8	0.8
64	2.9	2.6
65	1.7	1.6
66	0	3
67	0.8	0.8
68	0	0
69	1.1	1.1
70	1.9	0
71	1.9	1.9
72	4.7	0
73	1.9	1.9
74	2.6	2.6
75	2.3	1.7
76	0	0
77	2.5	2.6
78	3.3	3.3
79	2.3	2.4

MODE PIN NO.	REC	PLAY
80	2.3	2.4
81	1.7	1.7
82	1.7	1.7
83	0	0
84	0	0
85	1.5	1.2
86	2.8	2.8
87	3	3
88	2.2	2.1
89	1.7	1.7
90	2	2
91	2.4	1
92	0.5	0
93	4.6	4.7
94	2.1	3.3
95	1.6	1.7
96	2	3.3
97	2.9	3.8
98	2.9	2.7
99	1.7	0.6
100	1.7	0.5
101	2.3	1.5
102	2.3	1.5
103	1.7	0.7
104	1.7	0
105	1.8	0.5
106	1.8	1.8
107	1.5	1.5
108	2.3	2.3
109	2.9	1.9
110	2.8	4.3
111	2.7	3.9
112	2.9	1.4
113	-0.6	1
114	-0.4	0
115	0	0
116	1.8	0
117	1.7	1.7
118	3.4	3.7
119	1.6	2.8
120	1.6	2
121	2.2	2.2
122	2.1	2.1
123	1.8	0.7
124	1.8	0.5
125	3.3	0
126	1.9	2.2
127	2.9	0
128	1.8	1
IC3003		
1	2	2.1
2	0	0
3	4.7	4.8
4	0	2.9
5	0	0
6	2.8	2.8
7	6.7	6.7
8	2.3	1.8
9	4.7	4.8
10	0	0
11	2.5	0
12	6.7	0
13	2.9	0
14	0	0
15	2.9	2.9
16	4.7	4.8
17	0	0
18	0	-2.8
19	0	3
20	2	2
Q3008		
E	2.3	2.4
C	4.8	4.8
B	1.7	1.8
Q3009		
E	2.3	2.4
C	4.8	4.8
B	1.7	1.8

MODE PIN NO.	REC	PLAY
Q3011		
E	0	2.2
C	4.7	4.6
B	0	1.6
Q3012		
E	2.3	-
C	4.7	4.7
B	1.7	1.7
Q3082		
E	2.3	1.8
C	4.8	4.8
B	1.6	1.2
Q3090		
E	2.1	2.2
C	3.1	3.1
B	1.5	1.5
Q3091		
E	1.5	1.5
C	0	0
B	2.1	2.1
Q3232		
E	3.3	3.3
C	4.7	4.7
B	2.7	2.7
Q4010		
E	0	0
C	4.7	1.2
B	1.3	0
Q4011		
E	1.3	0
C	0	0
B	1.9	0.5
Q4014		
E	0	0
C	3.1	3
B	2.5	2.4
Q4017		
E	1.6	2
C	4.7	1.2
B	1.1	1.2

<AUTO>

MODE PIN NO.	REC	PLAY
IC4201		
1	1.8	1
2	1.7	1.7
3	1.7	1.7
4	4.4	1.2
5	1.7	1.7
6	1.7	1.6
7	1.6	0.5
8	2.3	0
9	1.7	1.6
10	1.7	0
11	0	0
12	1.6	0
13	1.6	0
14	1.2	0.5
IC4203		
1	2.6	0
2	3.3	0.6
3	2.7	0
4	2.3	0.5
5	2.1	0.4
6	1.7	0
7	2.1	0.6
8	4.2	1.2
9	2.2	0.6
10	2.4	1
11	0	0
12	2.4	1.1
13	0	0
14	1.1	0.6
15	3.7	1.2
16	4.5	1.2
17	0	1.7
18	0.5	0
19	2.9	0
20	2.9	0.6
21	1.1	0
22	0	0
23	0	0
24	2.7	1.1
25	1.1	0.6
26	0.7	0
27	2.6	0
28	0.6	0.5
29	2.2	0
30	0	0
31	0	0
32	2	0
33	2.3	0
34	4.7	1.3
35	3.1	0.8
36	2.3	0
37	3.1	0.7
38	3.2	1.2
39	2.6	0
40	3.2	1.2
41	2.6	0
42	0	1.2
43	2.6	0
44	3	0.7
IC4205		
1	0.6	0
2	1.9	0
3	1.9	1
4	0	0
5	1.9	1
6	1.9	0
7	1.9	0
8	4.6	1.2
Q4201		
1	0	1.6
2	1.7	1.7
3	0	1.6
4	1.6	1.3
5	1.7	1.3
Q4202		
E	0	0
C	3.1	3.1
B	2	0

MODE PIN NO.	REC	PLAY
Q4203		
E	3	3.2
C	2.9	0
B	0	3.2
Q4204		
E	0	0
C	3.6	1.2
B	0	0
Q4205		
1	1.8	1.1
2	1.2	1.2
3	3.5	1.5
4	4.7	1.3
5	0	0
6	0	0
Q4206		
1	2.4	0.5
2	1.8	0
3	2.4	0.5
4	4.7	1.2
5	1.9	0
6	0	0
Q4207		
1	1.7	0.7
2	0	0
3	1.4	1
4	4.7	1.2
5	0.8	0
6	0	0

<F/Z MDA>

MODE PIN NO.	REC	PLAY
IC4501		
1	0	0
2	0.4	0.4
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	3.1	3.1
9	6.7	6.7
10	0	0
11	0	0
12	0	0
13	6.7	6.7
14	0	0.7
15	0	0
16	0	0.7
17	0	0
18	0	0
19	0	0
20	0	0
21	2.6	0
22	0	0
23	6.7	6.7
24	0.4	0.6
25	0	0
26	0.4	0.6
27	6.7	6.8
28	0.4	0.6
29	0	0
30	0.4	0.6
31	0	0
32	0	0
33	0	0
34	1.4	1.2
35	2.8	2.8
36	0	1.7
37	1.2	1.2
38	3.1	0
Q4501		
E	0	0
C	2.7	2.7
B	0	0
Q4502		
E	0	0
C	2.7	0
B	0	0
Q4503		
E	0	0
C	2.7	2.7
B	0	0
Q4504		
E	0	0
C	2.8	0
B	0	0

<REGULATOR>

MODE PIN NO.	REC	PLAY
IC6001		
1	0	0.9
2	2.6	2.6
3	1	1
4	0.9	0.9
5	0	1.2
6	0	0
7	1.2	0
8	0	0
9	0	0
10	0	0
11	0	0
12	2.6	0
13	0	0.9
14	0.9	0
15	1.1	1.1
16	0.9	0.9
17	1.2	1.2
18	0.9	0.8
19	0	0
20	0	0
21	0.9	0
22	0	0
23	0	6.8
24	1.1	1.1
25	0	1.2
26	0	1.2
27	3.2	3.1
28	3.1	3.1
29	6.7	6.8
30	2.6	2.6
31	0	0
32	0	0
33	3.1	3.1
34	0	0
35	3.1	3.1
36	0	0
37	2.9	0
38	4.5	5.6
39	3.1	0
40	0	0
41	1.4	1.5
42	0	0
43	2.6	3.2
44	4.7	4.8
45	1.9	1.9
46	6.7	6.7
47	0	0
48	0	0
IC6002		
1	–	–
2	–	–
3	–	–
4	–	–
5	–	–
Q6001		
E	6	6.1
C	3.3	3.3
B	0	6.8
Q6002		
E	4	4.8
C	4.7	1.2
B	4.8	4.8
Q6003		
E	3.1	0
C	0	4.8
B	0	0
Q6005		
1	0	0
2	6.3	6.6
3	6.7	6.8
4	1.7	1.6
Q6011		
G	3.1	3
D	1.5	3
S	0	0
Q6012		
G	4.4	5.5
D	1.2	1

MODE PIN NO.	REC	PLAY
S	6.6	0
Q6013		
E	15.7	15.8
C	15.8	15.8
B	15	15.1
Q6019		
E	14.3	15
C	0	0
B	15	15
Q6020		
E	-7.4	-8
C	-8	-1.6
B	-8	-8
Q6021		
E	0.4	4.8
C	4.8	-8
B	4.8	4.8
Q6022		
E	0.5	0.4
C	0	14.9
B	0	0
Q6023		
E	0	0
C	0	0
B	0	0
Q6201		
E	6.7	6.8
C	0	0
Q6202		
E	0	0
C	6.7	0
B	0	0
Q6203		
E	0	0
C	0	0
B	0	0

<CTL AMP>

MODE PIN NO.	REC	PLAY
IC1201		
1	1.8	0
2	3.1	0
3	1.8	0
4	0	0
5	0.6	1.7
6	0.4	1.7
7	0	0
8	1.6	1.7
9	1.6	1.7
10	1.9	1.7
11	0	0
12	0.8	0.8
13	0.8	0.8
14	3.1	3.1

<MECHA SENSOR>

MODE PIN NO.	REC	PLAY
Q1001		
1	-	-
2	2.2	2.2
3	4	0
4	0	0
Q1002		
1	0	0
2	-	-
3	1.9	1.9
4	0	0
Q1003		
E	0	0
C	3.1	3.1
B	-	-
Q1004		
E	0	0
C	3	3.1
B	-	-

<MECHA MDA>

MODE PIN NO.	REC	PLAY
IC1601		
1	0	0
2	1.9	1.8
3	4.9	4.8
4	1.8	1.8
5	0	0
6	3.8	3.9
7	1.8	1.8
8	0.	40.4
9	0	0
10	0	0
11	0	0
12	6.7	6.7
13	0.4	0
14	0.8	0.8
15	0	0
16	0	0
17	0.8	0.8
18	1.7	1.6
19	0.8	0.8
20	1.2	1.2
21	1.2	1.2
22	1.2	1.2
23	0	0
24	2.3	2.3
25	2.3	2.3
26	2.3	2.3
27	2.3	2.3
28	2.3	2.3
29	1.5	1.5
30	2.4	2.4
31	2.4	-
32	2.4	-
33	4.8	4.8
34	0	-
35	0.5	0.5
36	0.5	0.5
37	1.1	1.1
38	1.5	0
39	4.8	4.8
40	0	0
41	0	0
42	2.8	2.8
43	0	0
44	1.4	0
45	3	3.1
46	0	0
47	4.8	4.7
48	4.8	4.8
49	0	0
50	-	-
51	0	0
52	0	0
53	1.6	1.6
54	0	0
55	0	0.5
56	0	0
57	2	2
58	0	0
59	0	0.6
60	0	0
61	2.3	0
62	2.8	2.9
63	2	2
64	2.3	2.3
65	2.3	2.3
66	-	2.4
67	0	2.3
68	0	1.5
69	0	0
70	1.8	1.8
71	1.8	1.8
72	1.8	1.8
73	1.9	1.8
74	2.3	2.3
75	2.3	2.3
76	2.3	2.3
77	0.7	0.7
78	4.5	4.5

MODE PIN NO.	REC	PLAY
79	4.6	0
80	4.64.5	
QA1601		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	1.8	1.8
9	4.6	4.5
10	1.8	1.8
11	4.6	4.5
12	1.8	1.8
13	4.6	0
14	4.9	4.9
QA1602		
1	0.8	0
2	1.2	0
3	0.8	0
4	1.2	0
5	0.8	0
6	1.2	0
7	1.7	0
8	0	0
9	0	1.2
10	0	0.8
11	0	1.2
12	0	0.8
13	0	1.2
14	0	1.6

<AUDIO>

MODE PIN NO.	REC	PLAY
IC2001		
1	1.6	1.6
2	2.2	2.2
3	2.2	2.2
4	2.2	2.2
5	2.2	2.2
6	2.2	2.2
7	0	0
8	1.5	1.5
9	0	0
10	2.2	2.2
11	0.7	0
12	0	3.4
13	2.2	2.2
14	4.6	0
15	2.2	2.2
16	0	0
17	0	0
18	0	0
19	1.6	1.6
20	0	0
21	1.6	1.6
22	4.5	4.5
23	1.6	1.6
24	4.5	4.5
IC2071		
1	2.2	2.2
2	2.2	2.2
3	2.2	2.2
4	0	0
5	2.2	2.2
6	2.2	2.2
7	2.2	2.2
8	4.5	4.5
Q2001		
E	0	4.8
C	0	0
B	4.8	4.8
Q2003		
E	0	0
C	0	-0.4
B	3.5	0
Q2004		
E	0	0
C	4.5	0
B	0	0
Q2005		
1	-14.2	0
2	-20.4	0.6
3	0	0
4	-14.2	0
5	-20	0
6	0	0
Q2006		
E	4.5	4.5
C	-20	4.5
B	4.5	0
Q2007		
E	0	0
C	4.5	0
B	0	3.4
Q2008		
E	0	0
C	0	0
B	2.9	2.8
Q2009		
E	0	0
C	2.9	2.9
B	0	0
Q2010		
E	0	2.8
C	0	0
B	2.9	0
Q2019		
E	0	0
C	0	0
B	0	0

<PRE/REC>

MODE PIN NO.	REC	PLAY
IC3501		
1	0	0
2	0	0
3	2.3	2.3
4	0	3.1
5	3.1	2.1
6	1.4	0
7	1.5	2.4
8	2.2	2.3
9	2.2	0
10	3	3
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0.6	0.6
17	2.3	2.2
18	0	0
19	0	0
20	3.8	0
21	3.2	0
22	3.7	0
23	0	0.5
24	0	0.6
25	0	0
26	0	0
27	3.7	0
28	3.3	0.4
29	3.8	0
30	4.5	0
31	4.5	0
32	3.8	0
33	3.2	0.4
34	3.8	0
35	0	0.4
36	0	0
37	0	0.7
38	0	0
39	3.8	0
40	3.3	0.4
41	3.8	0
42	2.2	2.3
43	0	0
44	4.5	4.6
45	4.5	4.6
46	2.2	4.2
47	3.6	2.6
48	3.8	2.2
Q3501		
E	0.6	0.4
C	0	0
B	0	0
Q3502		
E	0.6	0.4
C	0	0
B	0	0
Q3503		
E	0.6	0
C	0	0
B	0	0.4
Q3504		
E	0.6	0.4
C	0	0
B	0	0
Q3506		
E	0	0
C	0	0
B	0	2.9
Q3507		
E	0	0
C	0	2.9
B	4	0
Q3508		
E	0	0
C	2.3	0
B	0	0
Q3509		
E	3.8	4.2
C	0	4.6

MODE PIN NO.	REC	PLAY
B	3.2	3.6
Q3901		
E	0	0.4
C	0	0
B	0.5	0
Q3902		
E	0	0
C	0	0
B	0.5	0.4
Q3903		
E	0	0
C	0.5	0.4
B	0	0
Q3904		
E	3.1	3.1
C	0	0
B 3.1	3.1	
Q3905		
E	0	2.9
C	0	0
B	0	0
Q3906		
E	0	0
C	0	0
B	0	0

<CCD>

MODE PIN NO.	EE
IC5201	
1	-7.9
2	-7.9
3	0
4	0
5	0
6	0
7	0
8	0
9	0
10	5
11	0
12	0
13	5
14	4.7
15	0
16	14.9
17	-7.4
18	-7.4
19	0
20	14.9
IC5202	
1	5
2	0
3	1.1
4	0.7
5	1.9
6	0
7	0
8	5
9	0
10	0
11	0
12	0
13	4.7
14	5
15	5
16	5
17	0
18	0
19	1
20	0
21	0
22	2.5
23	0
24	5
25	0
26	0.5
27	0
28	3.7
29	1.2
30	0
31	0.6
32	0
33	1.8
34	0
35	0
36	0
37	1.2
38	4.6
39	4.8
40	0
41	5
42	0
43	1.4
44	0
45	5
46	0
47	0
48	1.6
49	2
50	0
51	4.8
52	0
53	0
54	1.5
55	1.5
56	0
57	5

MODE PIN NO.	EE
58	0.4
59	2.5
60	0
61	0.4
62	0.4
63	0.7
64	0.7
IC5203	
1	1.8
2	0.4
3	2.6
4	5
5	0.7
6	0.7
7	0
8	1.9
Q5203	
E	11.5
C	14.9
B	10.8
Q5204	
E	1.9
C	5
B	1.3
Q5205	
E	-
C	5
B	1.8

<C. VF>

GR-AX430/AX730

MODE PIN NO.	EE
IC7001	
1	0.6
2	0.6
3	0.5
4	0.4
5	0.4
6	0.4
7	0
8	0
9	4.7
10	1.3
11	0
12	0.5
13	0.5
14	0
15	0
16	2.4
IC7002	
1	11.7
2	4.8
3	0
4	0
5	4.8
6	4.7
7	13.1
8	14.9
IC7003	
1	3
2	0
3	1
4	0
5	1.6
6	2.7
7	1.1
8	0
9	0
10	0
11	0
12	0
13	0
14	1.4
15	-0.5
16	0
17	3
18	0
19	0
20	1.3
21	1.3
22	2.7
23	1.5
24	1.5
25	0
26	0
27	1.5
28	1.5
29	3
30	3
31	2.8
32	0
33	2.8
34	3
35	0
36	0
37	0
38	0
39	3
40	0
41	5.8
42	2.2
43	5.8
44	2.2
45	5.8
46	2.2
47	11.7
48	5.9
49	4.8
50	2.6
51	0
52	3.7
53	2.4
54	2.5
55	0
56	4.5
57	3.5
58	4.8
59	1
60	4.7
61	0
62	0
63	1.6
64	0
IC7004	
1	1.2
2	0
3	0
4	3
5	4.8
IC7005	
1	3.1
2	3
3	3
4	0
5	2.2
6	2.8
7	3
8	3
Q7001	
E	0
C	0
B	3.1
Q7002	
E	3.6
C	4.8
B	0
Q7003	
E	4.8
C	4.7
B	0

<BL>

MODE PIN NO.	EE
Q7301	
G	0
D	5.1
S	0

GR-AX230

MODE PIN NO.	EE
IC7001	
1	2.1
2	4.7
3	2.0
4	0
5	0
6	0
7	2.0
8	4.5
9	4.2
10	0
11	1.9
12	4.4
13	2.7
14	1.8
15	1.8
16	1.6
Q7001	
1	0.5
2	14.7
3	0
Q7002	
E	2.7
C	-25.2
B	2.2
Q7003	
E	-24.6
C	-34.8
B	-25.2

GR-AX230

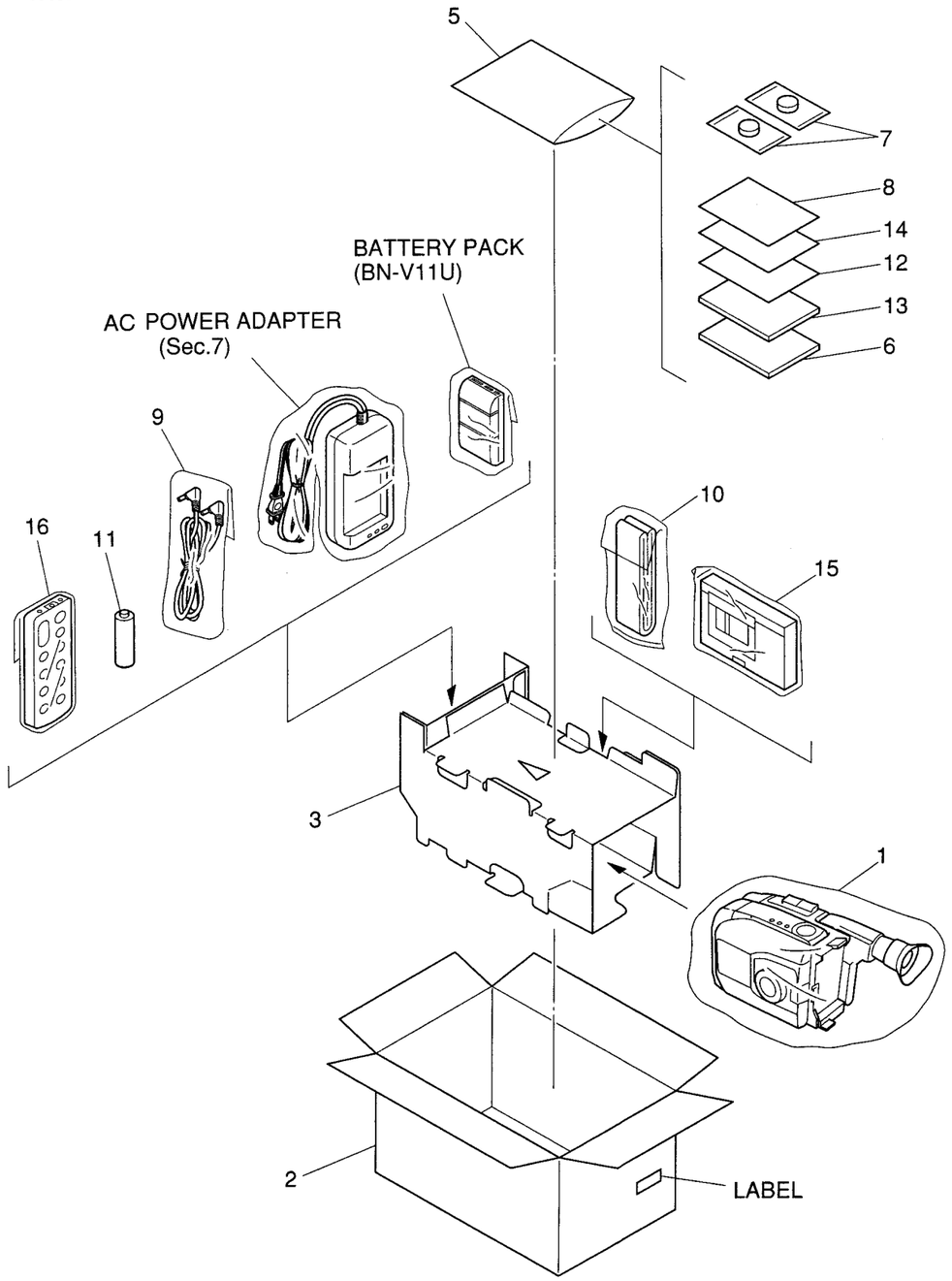
MODE PIN NO.	REC
IC1	
1	0
2	4.9
3	2.4
4	0
5	1.9
6	0
7	0
8	4.5
9	4.4
10	0
11	1.9
12	4.5
13	2.8
14	1.8
15	1.8
16	3.1
Q1	
E	2.2
C	-15.2
B	1.7
Q2	
E	0
C	4.5
B	0
Q3	
E	0
C	0
B	0.3

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING ASSEMBLY <M1>



#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

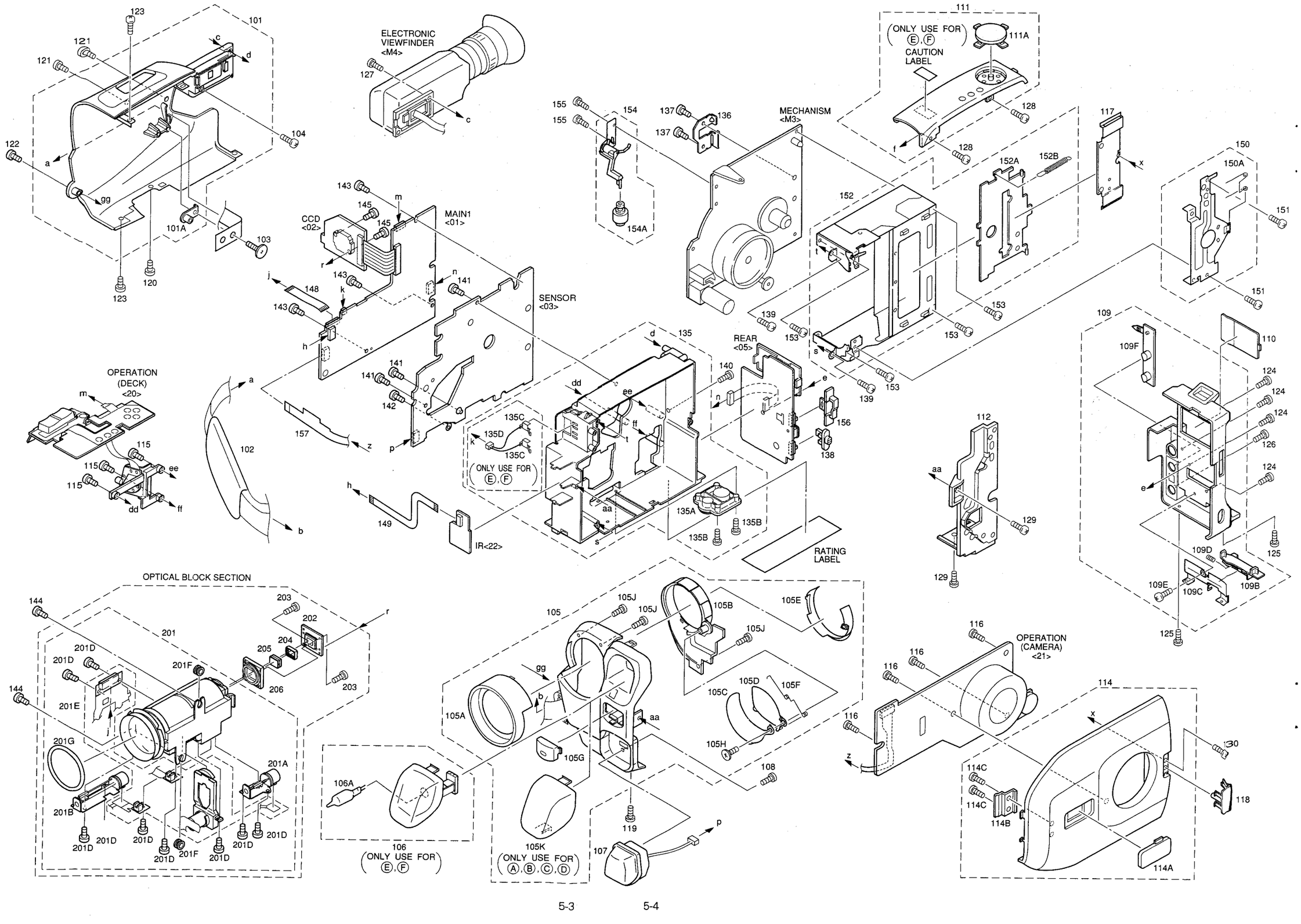
PACKING ASSEMBLY <M1>

		1	LY30023-002A	POLY BAG
		2	LY30337-001A	PACKING CASE,C
			LY30337-002A	PACKING CASE,D
			LY30337-003A	PACKING CASE,E
			LY30337-004A	PACKING CASE,A
			LY30337-005A	PACKING CASE,B
			LY30337-032A	PACKING CASE,F
		3	LY30338-001A	CUSHION
		5	QPA02003006	POLY BAG
	⚠	6	LYT0021-001A	INST.BOOK(EN),C,D
	⚠		LYT0023-001A	INST.BOOK(EN),A,B
	⚠		LYT0025-001A	INST.BOOK(EN),E,F
	⚠	7	PECA0903	LI BATTERY,A,B,C,D
	⚠		PECA0903	LI BATTERY,X2 E,F
		8	BT-51006-1	REGIST.CARD,A,C,E
		9	PEAC0449	DC PLUG CORD
		10	LY20186-001A	SHOULDER STRAP
		11	–	BATTERY, CASS. ADAPTER E,F
		12	BT-20071B	SER.NET CARD,B,D,F
	⚠	13	LYT0022-001A	INST.BOOK(FR),D
	⚠		LYT0024-001A	INST.BOOK(FR),B,F
		14	BT-52002-1	WARRANTY CARD,B,D,F
		15	YQ31963A-3	CASS.ADAPTER ASSY
			or YQ31963B-3	CASS.ADAPTER ASSY
		16	YQ20932A	REMOTE CONTROLLER,E,F

• INSTRUCTIONS
EN ..... ENGLISH
FR ..... FRENCH

MODEL	MARK
GR-AX230U	A
GR-AX230U-C	B
GR-AX430U	C
GR-AX430U-C	D
GR-AX730U	E
GR-AX730U-C	F

5.2 FINAL ASSEMBLY <M2>



# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION

****

FINAL ASSEMBLY <M2>

⚠	101	LY10044-001A	LOWER CASE ASSY
	101A	LY40081-001A	CAP
	102	LY20014-001A	GRIP BELT
	103	LY30018-003A	SPECIAL SCREW
	104	QYSLSF2055D	SPECIAL SCREW
	105	LY10046-001A	FRONT COVER ASSY,A,B,C,D
		LY10046-002A	FRONT COVER ASSY,E,F
	105A	LY30311-001A	HOOD
	105B	LY20128-001A	GUIDE(SHUTTER)
	105C	LY30313-001A	SHUTTER(1)
	105D	LY30314-001A	SHUTTER(2)
	105E	LY30315-001A	KNOB(SHUTTER)
	105F	LY40187-001A	TORSION SPRING
	105G	LY30316-001A	IR WINDOW,E,F
		LY30533-001A	IR WINDOW,A,B,C,D
	105H	YQ43762	SPECIAL SCREW
	105J	QYSLSF2050Z	SCREW,X3
	105K	LY30317-001A	COVER(LIGHT),A,B,C,D
	106	LY20083-001A	DC LIGHT,E,F
	106A	YQ44266	LAMP,E,F
	107	LY20082-001B	MICROPHONE
	108	QYSLSF2055D	SPECIAL SCREW
⚠	109	LY10049-001A	REAR COVER ASSY,A,B,C,D
⚠		LY10049-002A	REAR COVER ASSY,E,F
	109B	YQ32079	KNOB(B.RELEASE)
	109C	LY30318-001A	BKT(B.RELEASE)
	109D	LY30002-001A	COMPRES.SPRING
	109E	QYSLSF2040D	SCREW
	109F	LY30319-001A	COVER(JACK)
	110	YQ31821-1-4	CAP(LITHIUM)
	111	LY20090-001A	TOP COVER ASSY,C,D
⚠		LY20090-002A	TOP COVER ASSY,E,F
		LY20090-004A	TOP COVER ASSY,A,B
	111A	LY30324-001A	BUTTON(PLAY)
⚠	112	LY20092-001A	UPPER CASE
⚠	114	LY10054-004A	CASSETTE COVER ASSY
	114A	LY30326-002A	LCD WINDOW
	114B	LY30327-001A	HINGE(C.COVER)
	114C	QYSLSF2055D	SPECIAL SCREW,X2
	115	QYSLSF2055D	SPECIAL SCREW,X3
	116	QYSLSF2055D	SPECIAL SCREW,X4
	117	LY30333-001A	BKT(C.COVER)
	118	LY40190-001A	BUTTON(PUSH)ASSY
	119	QYSLSF2055D	SPECIAL SCREW
	120	QYSLSF2055D	SPECIAL SCREW
	121	QYSLSF2055D	SPECIAL SCREW,X2
	122	QYSLSF2055D	SPECIAL SCREW
	123	QYSLSF2055D	SPECIAL SCREW,X2
	124	QYSLSF2055D	SPECIAL SCREW,X4
	125	QYSLSF2055D	SPECIAL SCREW,X2
	126	QYSLSF2055D	SPECIAL SCREW
	127	QYSLSF20A0D	SCREW
	128	QYSLSF2055D	SPECIAL SCREW,X2
	129	QYSLSF2055D	SPECIAL SCREW,X2
	130	QYSLSP2030D	SCREW
⚠	135	LY20094-001A	FRAME ASSY,A,B,C,D
⚠		LY20094-002A	FRAME ASSY,E,F

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
135A	YQ31843	BASE
135B	QYSLSF2060D	SCREW,X2
135C	YQ43810	CONTACT(LIGHT),X2 E,F
135D	WJM0003-001A	E-SI C WIRE C-F,E,F
136	LY30335-001A	BKT(MECHA)
137	QYSPSTU1725M	SCREW,X2
138	YQ43806-2	KNOB(LIGHT),E,F
139	QYSLSF1750D	SCREW,X2
140	QYSLSP2030D	SCREW
141	QYSPSTU1750M	SCREW,X3
142	QYSPSTU1725M	SCREW
143	QYSLSF2055D	SPECIAL SCREW,X3
144	YQ43762-4	SCREW,X2
145	LY30018-009A	SPECIAL SCREW,X2
148	QUQ105-2206AA	FFC WIRE,MAIN CN15-OP
149	QAL0084-001	FPC,MAIN CN23-IR
150	LY30514-001A	FRONT FRAME ASSY
150A	YQ44144-1-1	TAPE GUIDE
151	SPSH1725M	SCREW,X2
152	YQ31752E	CASSETTE HOUSING ASSY
152A	LY20093-001A	C. COVER INSIDE
152B	LY40032-001B	TENSION SPRING
153	YQ44457-3	SCREW,X4
154	YQ44027A-7	CLEANER ASSY
154A	YQ44109A-2	CLEANER ROLLER ASSY
155	LY40320-001A	SPECIAL SCREW,X2
156	LY30121-001B	KNOB/EJECT
157	QAL0085-001	FPC,OPERATION(CAMERA)-MAIN1 CN16

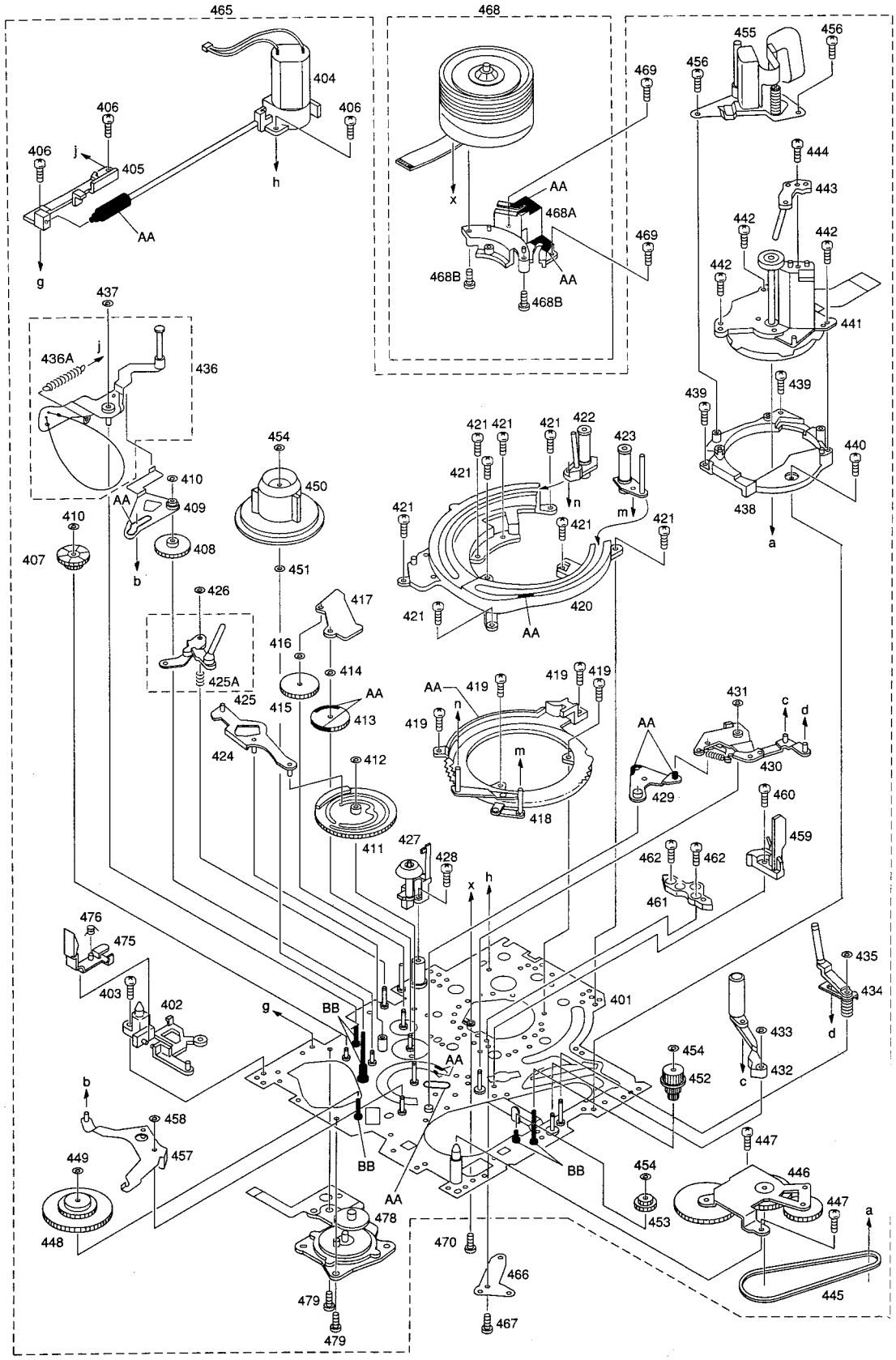
– OPTICAL BLOCK SECTION –

201	LY30526-001B	OP BLOCK ASSY
201A	PTY30526-002	FOCUS MOTOR UNIT
201B	PTY30526-001	ZOOM MOTOR UNIT
201D	PTY30151-016	SCREW,X9
201E	PTY30526-006	IRIS UNIT,INCL. FPC
201F	PTY30526-021	RUBBER BUSH,X2
201G	PTY30526-020	O RING
202	YS40166A	CCD BASE ASSY
203	SPSN2090Z	SCREW,X2
204	LY30296-001A	SPACER RUBBER
205	LY40549-001A	OP LPF
206	LY20086-001A	CCD SPACER

5.3 MECHANISM ASSEMBLY <M3>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



Classification	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	YTU94027	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION

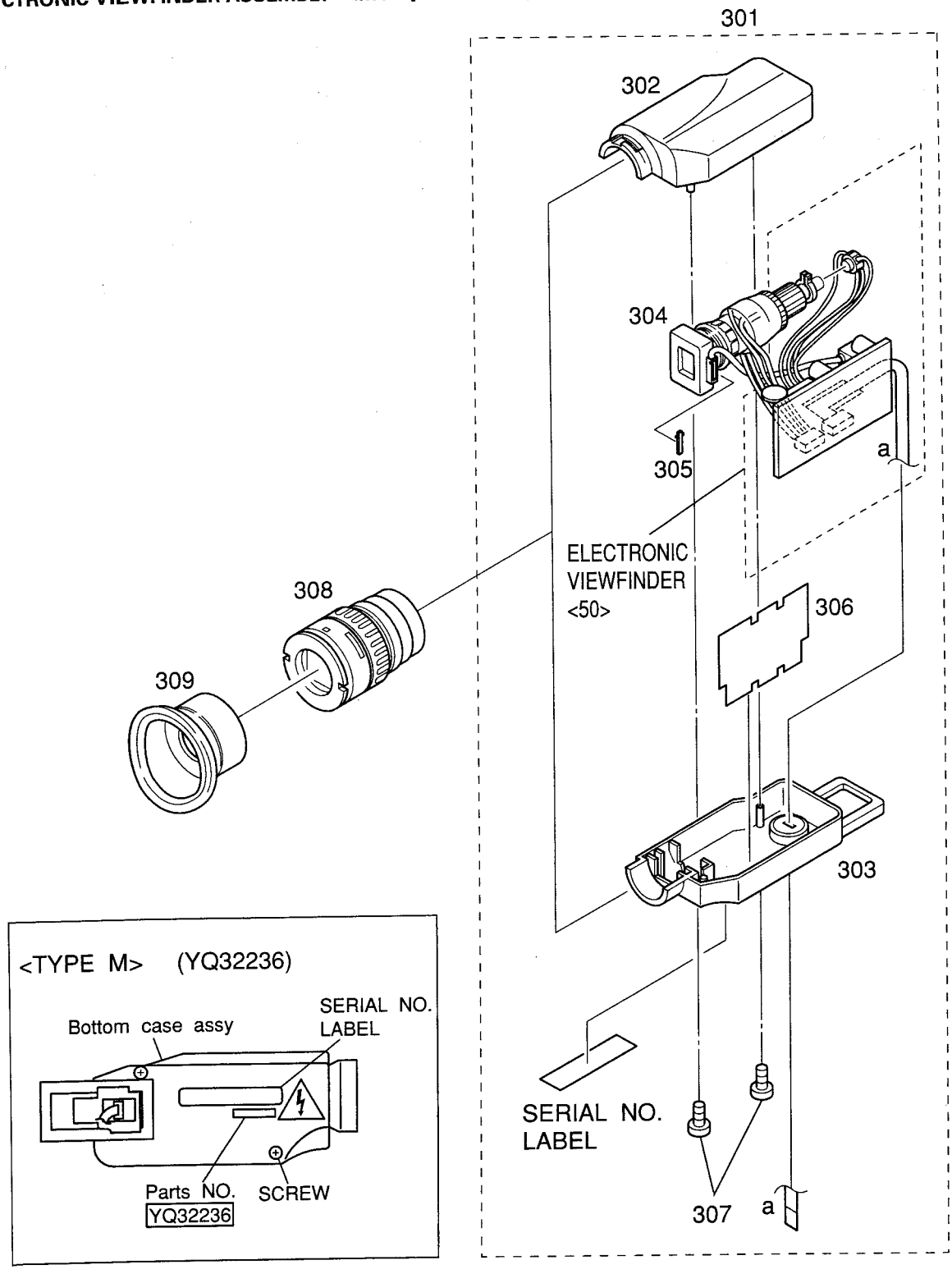
****

MECHANISM ASSEMBLY <M3>

401	LY20182-001A	MAIN DECK ASSY
402	YQ32218	CASS.GUIDE(L)
403	YQ44457	SCREW
404	YQ31856A-3	MOTOR BRACKET ASSY
405	YQ20793	WORM BRACKET
406	YQ44457	SCREW,X3
407	YQ31783	WHEEL GEAR
408	YQ44328	MIDDLE GEAR
409	YQ43849B	CANCEL LEVER ASSY
410	PQM30017-27	SLIT WASHER,X2
411	YQ20827-2-1	CONTROL CAM
412	LY30015-001A	SLIT WASHER
413	YQ43853A	LOADING GEAR(T)ASSY
414	PQM30017-27	SLIT WASHER
415	YQ43852A	LOADING GEAR(S)ASSY
416	PQM30017-27	SLIT WASHER
417	YQ43634	COVER PLATE
418	YQ43635C-10	LOADING RING ASSY
419	YQ44457	SCREW,X4
420	YQ10516-1-11	GUIDE RAIL
421	YQ44457-5	SCREW,X8
422	YQ43646A-4	SUPPLY POLE BASE ASSY
423	YQ43654A-11	TAKE-UP POLE BASE ASSY
424	YQ44439A-2	DRIVE LEVER ASSY
425	YQ43663C-7	SLANT ARM ASSY
425A	YQ43670	TOR.SPRING(S)
426	PQM30017-27	SLIT WASHER
427	YQ44436A-3	ROLLER BASE ASSY
428	YQ44457	SCREW
429	YQ32230	LINK LEVER
430	YQ43682B	LINK ARM ASSY
431	PQM30017-25	SLIT WASHER
432	LY40018-001A	PINCH ROLLER ARM ASSY
433	PQM30017-25	SLIT WASHER
434	YQ44591A	TAKE-UP GUIDE ARM ASSY
435	PQM30017-27	SLIT WASHER
436	YQ44199C-7	TENSION ARM ASSY
436A	YQ43848-1-2	TENSION SPRING
437	PQM30017-27	SLIT WASHER
438	YQ20797-1-3	MOTOR BASE
439	YQ44457	SCREW,X2
440	YQ44460	SCREW
441	YU42078-2	CAPSTAN MOTOR
442	YQ44304	TAPPING SCREW,X3
443	YQ43708A-3	SLANT POLE BASE ASSY
444	YQ44304	TAPPING SCREW
445	YQ43710	TIMING BELT
446	YQ43711B-8	CENTER PULLEY UNIT
447	YQ44457-2	SCREW,X2
448	YQ43729A-2	SUPPLY CLUCH ASSY
449	PQM30017-27	SLIT WASHER
450	YQ31861-1-7	REEL DISC
451	Q03093-835	WASHER
452	YQ31787	TAKE-UP GEAR
453	YQ43737	BRAKE SUB GEAR
454	PQM30017-27	SLIT WASHER,X3

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
455	YQ43738C-14	A/C HEAD UNIT
456	SPSN1750Z	SCREW,X2
457	YQ43743B	EJECT LEVER ASSY
458	PQM30017-27	SLIT WASHER
459	YQ31833-1-1	LED GUIDE
460	YQ44457	SCREW
461	YQ43818	DRUM SPACER
462	YQ44457	SCREW,X2
465	YMA0023A	MECHA(A)ASSY
466	YU42051	BRUSH
467	LY40320-001A	SPECIAL SCREW
468	YDV2083A	DRUM ASSY
468A	YDM1003-1-5	CATCHER
468B	QYSPSPT1734M	SCREW,X2
469	YQ44457	SCREW,X2
470	SPSH1740Z	SCREW
475	YQ32219	SW.LEVER(L)
476	YQ44422-1-1	TORSION SPRING
478	QSW0455-003	ROTARY ENCODER
479	LY40320-002A	SPECIAL SCREW,X2

5.4 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX230U/U-C]



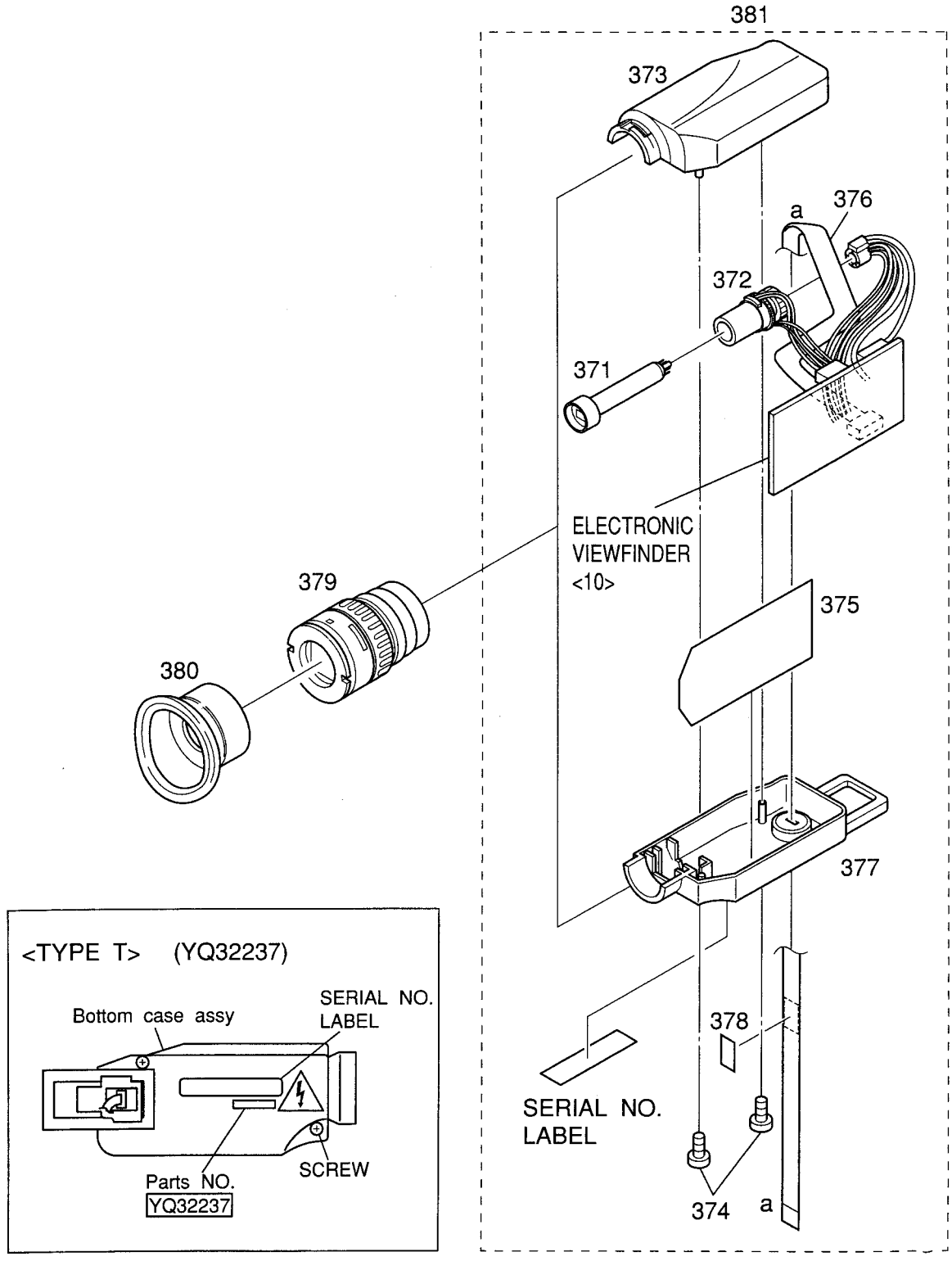
#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

ELECTRONIC VIEWFINDER ASSEMBLY <M4>

⚠	301	YQ32236H	EVF ASSY
⚠	302	YQ32236-001	TOP CASE
⚠	303	YQ32236-202	BOTTOM CASE ASSY
⚠	304	YQ31803-001	CRY/DY ASSY
⚠	305	YU30181-014	HV COVER
⚠	306	YQ31803-100	INSULATOR
	307	YU30045-014	SCREW,X2 M1.7X5
	308	YQ31803-200	LENS ASSY
	309	YQ31803-201	EYE CAP

5.5 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX230U/U-C]



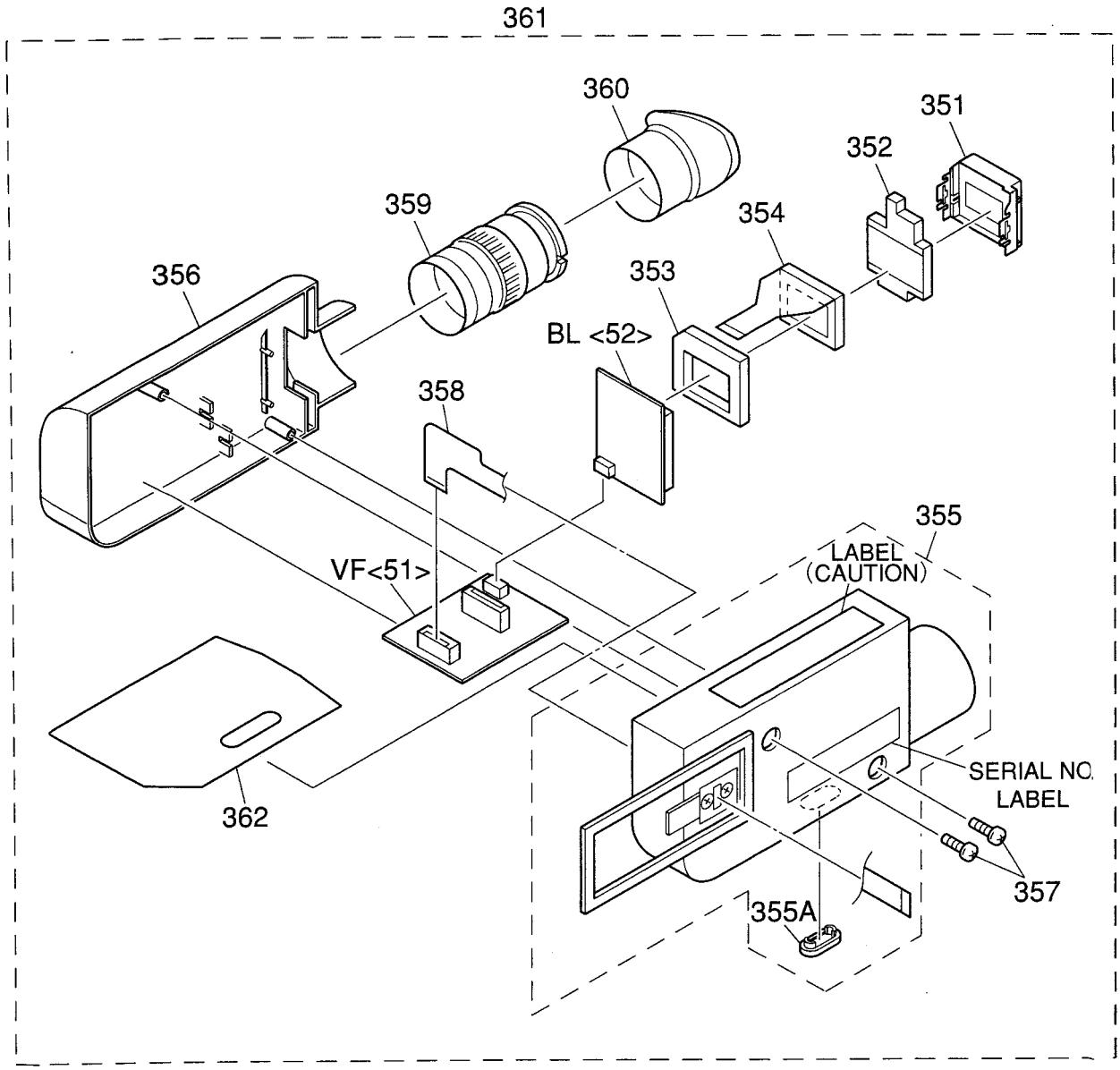
#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

ELECTRONIC VIEWFINDER ASSEMBLY <M4>

	⚠	371	PEDP0193	CRT
	⚠	372	PELN1179	DEFLECTION YOKE
	⚠	373	YQ10628-2	TOP CASE
		374	QYSPSGU1750M	SCREW,X2
	⚠	375	YQ44473	INSULATOR
		376	PEWR0819	FPC,CN7002-MAIN CN12
		377	YQ32237-202	BOTTOM CASE ASSY
		378	LY30016-070A	SPACER-A
		379	YQ31803-200	LENS ASSY
		380	YQ31803-201	EYE CAP
	⚠	381	YQ32237G	EVF ASSY

5.6 ELECTRONIC VIEWFINDER ASSEMBLY <M4> [GR-AX430U/U-C/AX730U/U-C]



♯ ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
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		ELECTRONIC VIEWFINDER ASSEMBLY <M4>
351	YQ31801-1-3	HOLDER(LCD)
352	YQ43792	WINDOW(LCD)
353	LY40016-001A	DAMPER/LAMP
354	PEDP0191	LCD PANEL
⚠ 355	LY30307-001A	BUTTOM CASE ASSY
355A	YQ44253	CAP
⚠ 356	YQ31932B-3	TOP CASE ASSY
357	QYSPSGU2080M	SCREW,X2
358	QAL0087-001	FPC, CN7001-MAIN1 CN12
359	YQ31803-200	LENS ASSY
360	YQ31803-201	EYE CAP
⚠ 361	YS20899G	EVF ASSY
362	LY40044-001A	INSULATOR

5.7 ELECTRICAL PARTS LIST

MODEL	MARK
GR-AX230U	A
GR-AX230U-C	B
GR-AX430U	C

MODEL	MARK
GR-AX430U-C	D
GR-AX730U	E
GR-AX730U-C	F

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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MAIN1 BOARD ASSEMBLY <01>

	PW1	YB10210NA1-01	MAIN1 BOARD ASSY,A,B
		YB10210NB1-01	MAIN1 BOARD ASSY,C,D
		YB10210NC1-01	MAIN1 BOARD ASSY,E,F
	IC101	UPD703008-011	IC
		or UPD70F3008-011	IC
	IC102	S-81333HG-KF-X	IC
	IC103	PST9127N	IC
	IC104	RS5C314	IC
	IC105	NM25C040LZEM8	IC
	IC106	TC74HC4052AFS	IC
		or TC74HC4052AFT	IC
	IC108	JCY0075	IC
	IC109	UPD6462GS-908-X	IC
	IC110	TC7W00FU	IC(DIGITAL)
	IC3001	JCY0059A	IC
	IC3003	MN3874S	IC
	IC4201	BA10324AFV-XE	IC
	IC4202	BA10324AFV-XE	IC
	IC4203	JCY0007-1-XE	IC
	IC4205	UPC358GR	IC
	IC4501	UPD16835G3	IC
⚠	IC6001	FA3621F	IC
	IC6002	MM1320AN	IC
	Q101	2SA1774/RS/-X	TRANSISTOR
	Q102	DTC144EE	TRANSISTOR
	Q103	DTA114EE	TRANSISTOR,E,F
	Q104	2SC4617/QR/-X	TRANSISTOR,E,F
	Q107	DTC144EE	TRANSISTOR
	Q108	2SC4617/QR/-X	TRANSISTOR
	Q109	DTC124EE	TRANSISTOR,E,F
	Q110	2SA1774/RS/-X	TRANSISTOR
	Q111	DTC144EE	TRANSISTOR
	Q112	DTA124EE	TRANSISTOR
	Q3006	2SA1774/QRS/-X	TRANSISTOR
	Q3008	2SC4617/QRS/-X	TRANSISTOR,C,D,E,F
	Q3009	2SC4617/QRS/-X	TRANSISTOR,C,D,E,F
	Q3011	2SC4617/QRS/-X	TRANSISTOR
	Q3012	2SC4617/QRS/-X	TRANSISTOR
	Q3082	2SC4617/QRS/-X	TRANSISTOR
	Q3090	2SC4617/QRS/-X	TRANSISTOR
	Q3091	2SA1774/QRS/-X	TRANSISTOR
	Q3231	2SC4617/QRS/-X	TRANSISTOR
	Q3232	2SC4617/QRS/-X	TRANSISTOR
	Q4010	2SC4617/QR/-X	TRANSISTOR
	Q4011	2SA1832/Y/-X	TRANSISTOR
	Q4017	2SC4617/QR/-X	TRANSISTOR
	Q4201	XP1216	TRANSISTOR
	Q4202	DTC144WU	TRANSISTOR
	Q4203	DTA114EU	TRANSISTOR
	Q4204	DTC144WU	TRANSISTOR
	Q4205	XP5601	TRANSISTOR
	Q4206	XP5601	TRANSISTOR
	Q4207	XP5601	TRANSISTOR
	Q4501	2SC4617/QR/-X	TRANSISTOR
	Q4502	2SC4617/QR/-X	TRANSISTOR
	Q4503	2SC4617/QR/-X	TRANSISTOR
	Q4504	2SC4617/QR/-X	TRANSISTOR
	Q6001	2SB1302/ST/-X	TRANSISTOR
	Q6002	2SA1774/QR/-X	TRANSISTOR
	Q6003	DTC114EE	TRANSISTOR
	Q6005	MPL1	TRANSISTOR
	Q6009	MPL1	TRANSISTOR
	Q6010	MPL1	TRANSISTOR
	Q6011	2SK1467	FE TRANSISTOR
	Q6012	2SJ381	MOS FET
	Q6013	2SC4081/S/-X	TRANSISTOR
	Q6019	2SA1774/QR/-X	TRANSISTOR
	Q6020	2SC4617/QR/-X	TRANSISTOR
	Q6021	DTA144EE	TRANSISTOR
	Q6022	2SC4617/QR/-X	TRANSISTOR
	Q6023	DTC144EE	TRANSISTOR
	Q6201	2SB1308/QR/-X	TRANSISTOR,E,F
	Q6202	2SC4617/QR/-X	TRANSISTOR,E,F
	Q6203	2SB1308/QR/-X	TRANSISTOR,E,F
	D101	MA8075/M/-X	ZENER DIODE
	D103	1SS355	DIODE
	D104	RB751V-40-X	SB DIODE
	D3002	DAN222	DIODE
	D4201	MA8047/L/-X	ZENER DIODE
	D4202	1SS355	DIODE
	D4203	1SS355	DIODE
	D4204	RD2.7S/B2/-X	ZENER DIODE
	D4205	1SS355	DIODE
	D4207	MA728	DIODE
	D4501	MA728	DIODE
	D6001	MA736	SB DIODE
	D6008	1SS355	DIODE
	D6010	1SS355	DIODE
	D6011	1SS355	DIODE
⚠	DA101	RB715F	DIODE
	DA102	DAN222	DIODE
	DA104	DAN222	DIODE
	DA106	RB717F	SB DIODE
	DA107	DAN222	DIODE
	R101	NRSA63J-104X	MG RESISTOR 100kΩ,1/16W
	R102	NRSA63J-103X	MG RESISTOR 10kΩ,1/16W
	R103	NRSA63J-561X	MG RESISTOR 560Ω,1/16W
	R104	NRVA63D-153X	CMF RESISTOR 15kΩ,1/16W
	R105	NRVA63D-243X	CMF RESISTOR 24kΩ,1/16W
	R106	NRVA63D-183X	CMF RESISTOR 18kΩ,1/16W
	R107	NRSA63J-273X	MG RESISTOR 27kΩ,1/16W
	R108	NRSA63J-222X	MG RESISTOR 2.2kΩ,1/16W
	R109	NRSA63J-471X	MG RESISTOR,E,F 470Ω,1/16W
	R110	NRSA63J-472X	MG RESISTOR 4.7kΩ,1/16W
	R111	NRSA63J-222X	MG RESISTOR 2.2kΩ,1/16W
	R112	NRSA63J-472X	MG RESISTOR 4.7kΩ,1/16W
	R113	NRSA63J-105X	MG RESISTOR 1MΩ,1/16W
	R114	NRSA63J-221X	MG RESISTOR 220Ω,1/16W
	R115	NRSA63J-124X	MG RESISTOR 120kΩ,1/16W
	R116	NRSA63J-221X	MG RESISTOR 220Ω,1/16W
	R117	NRSA63J-105X	MG RESISTOR 1MΩ,1/16W
	R118	NRSA63J-474X	MG RESISTOR 470kΩ,1/16W
	R119	NRSA63J-273X	MG RESISTOR 27kΩ,1/16W
	R120	NRSA63J-472X	MG RESISTOR 4.7kΩ,1/16W
	R122	NRSA63J-681X	MG RESISTOR 680Ω,1/16W
	R124	NRSA63J-473X	MG RESISTOR 47kΩ,1/16W
	R125	NRSA63J-103X	MG RESISTOR 10kΩ,1/16W
	R126	NRSA63J-273X	MG RESISTOR 27kΩ,1/16W

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R127	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R128	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R129	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R130	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R131	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R132	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R133	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R134	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R135	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R136	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R137	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R138	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R139	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R140	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R141	NRSA63J-0R0X	MG RESISTOR,C,D,E,F	0Ω,1/16W
	NRSA63J-153X	MG RESISTOR,A,B	15kΩ,1/16W
R142	NRSA63J-0R0X	MG RESISTOR,C,D,E,F	0Ω,1/16W
	NRSA63J-153X	MG RESISTOR,A,B	15kΩ,1/16W
R143	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R144	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R145	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R146	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R147	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R148	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R149	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R150	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R151	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R152	NRSA63J-473X	MG RESISTOR,E,F	47kΩ,1/16W
R153	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R154	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R155	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R156	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R157	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R158	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R159	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R160	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R161	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R162	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R165	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R166	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R170	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R171	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R173	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R175	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R176	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R177	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R178	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R179	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R180	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R181	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R182	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R183	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R184	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R185	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R186	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R187	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R188	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R189	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R191	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R192	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R193	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R194	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R195	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R3003	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R3004	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R3005	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3006	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R3007	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R3009	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3010	NRSA63J-391X	MG RESISTOR	390Ω,1/16W
R3011	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
R3012	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3013	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3014	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3015	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R3016	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3018	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R3019	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3020	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3022	NRVA63D-431X	CMF RESISTOR	430Ω,1/16W
R3023	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R3024	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R3025	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3026	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3027	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3028	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R3029	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3030	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3031	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3033	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R3034	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R3035	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3036	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3037	NRSA63J-102X	MG RESISTOR,C,D,E,F	1kΩ,1/16W
R3038	NRSA63J-102X	MG RESISTOR,C,D,E,F	1kΩ,1/16W
R3039	NRSA63J-222X	MG RESISTOR,C,D,E,F	2.2kΩ,1/16W
R3040	NRSA63J-222X	MG RESISTOR,C,D,E,F	2.2kΩ,1/16W
R3043	NRVA63D-221X	CMF RESISTOR	220Ω,1/16W
R3044	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R3046	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3053	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R3057	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R3058	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R3059	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R3061	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R3066	NRSA02J-750X	MG RESISTOR	75Ω,1/10W
R3067	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R3068	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R3071	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3072	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3073	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R3090	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3091	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3220	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R3221	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R3222	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R3223	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R3224	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3225	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3226	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3228	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3229	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R3230	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3231	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R3232	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3233	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3234	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R3235	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R3236	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R3306	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3311	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4061	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4062	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4063	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4064	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4065	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4066	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4068	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4069	NRSA63J-392X	MG RESISTOR	3.9kΩ,1/16W
R4070	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4071	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4077	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R4078	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4079	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4080	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4083	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4085	NRSA63J-621X	MG RESISTOR	620Ω,1/16W
R4087	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R4088	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R4091	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
R4092	NRSA63J-912X	MG RESISTOR	9.1kΩ,1/16W
R4094	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4095	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4096	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4097	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R4098	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4099	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4100	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4101	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4103	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R4201	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4202	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4203	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
R4204	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R4205	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4206	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R4207	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4208	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4209	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4210	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R4211	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4212	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R4213	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R4215	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4216	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4217	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R4218	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R4219	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R4220	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4221	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4222	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4223	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4224	NRSA63J-241X	MG RESISTOR	240Ω,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R4225	NRSA63J-751X	MG RESISTOR	750Ω,1/16W
R4226	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4227	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R4228	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R4229	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
R4230	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4231	NRSA63J-684X	MG RESISTOR	680kΩ,1/16W
R4232	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4233	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4234	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4235	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R4236	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4237	NRSA63J-512X	MG RESISTOR	5.1kΩ,1/16W
R4238	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R4239	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4240	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4241	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R4243	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4244	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4245	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R4246	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R4247	NRSA63J-124X	MG RESISTOR	120kΩ,1/16W
R4249	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R4250	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R4252	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R4253	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4254	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R4255	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R4256	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4257	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R4258	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R4259	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R4260	NRSA63J-133X	MG RESISTOR	13kΩ,1/16W
R4261	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R4262	NRSA63J-432X	MG RESISTOR	4.3kΩ,1/16W
R4263	NRSA63J-392X	MG RESISTOR	3.9kΩ,1/16W
R4264	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R4265	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R4266	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
R4267	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4268	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R4270	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4501	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R4502	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R4504	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4505	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4506	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R4507	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R4508	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R4510	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
R4511	NRSA63J-151X	MG RESISTOR	150Ω,1/16W
⚠ R4512	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠ R4513	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠ R4514	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
⚠ R4515	NRSA63J-6R8X	MG RESISTOR	6.8Ω,1/16W
R4516	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R4517	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R4519	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6001	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6002	NRVA63D-622X	CMF RESISTOR	6.2kΩ,1/16W
R6004	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R6005	NRVA63D-303X	CMF RESISTOR	30kΩ,1/16W
R6006	NRVA63D-244X	CMF RESISTOR	240kΩ,1/16W
R6011	NRSA63J-331X	MG RESISTOR	330Ω,1/16W
R6012	NRVA63D-363X	CMF RESISTOR	36kΩ,1/16W
R6013	NRVA63D-912X	CMF RESISTOR	9.1kΩ,1/16W
R6014	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6015	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R6019	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R6020	NRVA63D-363X	CMF RESISTOR	36kΩ,1/16W
R6021	NRVA63D-163X	CMF RESISTOR	16kΩ,1/16W
R6023	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R6024	NRVA63D-243X	CMF RESISTOR	24kΩ,1/16W
R6025	NRVA63D-332X	CMF RESISTOR	3.3kΩ,1/16W
R6026	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R6027	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R6028	NRVA63D-823X	CMF RESISTOR	82kΩ,1/16W
R6029	NRSA63J-471X	MG RESISTOR	470Ω,1/16W
R6030	NRVA63D-473X	CMF RESISTOR	47kΩ,1/16W
R6031	NRVA63D-302X	CMF RESISTOR	3kΩ,1/16W
R6032	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R6033	NRVA63D-113X	CMF RESISTOR	11kΩ,1/16W
R6034	NRVA63D-363X	CMF RESISTOR	36kΩ,1/16W
R6036	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6039	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R6040	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6041	NRVA63D-333X	CMF RESISTOR	33kΩ,1/16W
R6042	NRVA63D-222X	CMF RESISTOR	2.2kΩ,1/16W
R6043	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R6052	NRSA02J-0R0X	MG RESISTOR,C,D,E,F	0Ω,1/10W
R6055	NRVA63D-114X	CMF RESISTOR	110kΩ,1/16W
R6056	NRVA63D-104X	CMF RESISTOR	100kΩ,1/16W
R6057	NRVA63D-114X	CMF RESISTOR	110kΩ,1/16W
R6058	NRVA63D-104X	CMF RESISTOR	100kΩ,1/16W
R6060	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R6061	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6062	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R6063	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R6064	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R6065	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R6066	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R6067	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R6074	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R6075	NRSA02J-0R0X	MG RESISTOR	0Ω,1/10W
R6201	NRSA63J-103X	MG RESISTOR,E,F	10kΩ,1/16W
R6202	NRSA63J-102X	MG RESISTOR,E,F	1kΩ,1/16W
R6203	NRSA63J-103X	MG RESISTOR,E,F	10kΩ,1/16W
R6204	NRSA63J-103X	MG RESISTOR,E,F	10kΩ,1/16W
RA101	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA102	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA103	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA105	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA106	NRZ0012-103X	NETWORK RESISTOR	10kΩ
RA107	NRZ0015-222X	NETWORK RESISTOR	2.2kΩ
RA108	NRZ0012-331X	NETWORK RESISTOR	330Ω
RA3001	NRZ0012-222X	NETWORK RESISTOR	2.2kΩ
RA3002	NRZ0012-222X	NETWORK RESISTOR	2.2kΩ
C101	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C102	NBE41AM-106X	T CAPACITOR	10μF,10V
C103	NCB31CK-104X	CAPACITOR	0.1μF,16V
C104	NBE21AM-225X	T CAPACITOR	2.2μF,10V
C105	NEA70JM-226X	E CAPACITOR	22μF,6.3V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C106	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C107	NCB31EK-103X	CAPACITOR	0.01μF,25V
C108	NCB31EK-103X	CAPACITOR	0.01μF,25V
C109	NCF21CZ-474X	CAPACITOR	0.47μF,16V
C110	NCB31CK-333X	CAPACITOR	0.033μF,16V
C112	NDC31HJ-100X	CAPACITOR	10pF,50V
C113	NDC31HJ-120X	CAPACITOR	12pF,50V
C114	NEA71CM-106X	E CAPACITOR	10μF,16V
C115	NDC31HJ-101X	CAPACITOR	100pF,50V
C117	NCB31EK-103X	CAPACITOR	0.01μF,25V
C118	NCB31EK-103X	CAPACITOR	0.01μF,25V
C119	NDC31HJ-151X	CAPACITOR	150pF,50V
C121	NDC31HJ-151X	CAPACITOR	150pF,50V
C122	NCB31EK-103X	CAPACITOR	0.01μF,25V
C123	NCB31EK-103X	CAPACITOR	0.01μF,25V
C124	NCB31EK-103X	CAPACITOR	0.01μF,25V
C126	NCB31EK-153X	CAPACITOR	0.015μF,25V
C127	NCB31EK-103X	CAPACITOR	0.01μF,25V
C128	NCB31EK-103X	CAPACITOR	0.01μF,25V
C129	NCB31CK-333X	CAPACITOR	0.033μF,16V
C139	NDC31HJ-150X	CAPACITOR	15pF,50V
C140	NCB31EK-103X	CAPACITOR	0.01μF,25V
C141	NCB31EK-103X	CAPACITOR	0.01μF,25V
C142	NCB31EK-103X	CAPACITOR	0.01μF,25V
C143	NCB31EK-103X	CAPACITOR	0.01μF,25V
C144	NCB31EK-103X	CAPACITOR	0.01μF,25V
C145	NCB31EK-103X	CAPACITOR	0.01μF,25V
C146	NCB31EK-103X	CAPACITOR	0.01μF,25V
C147	NCB31EK-103X	CAPACITOR	0.01μF,25V
C148	NCB31EK-103X	CAPACITOR	0.01μF,25V
C149	NCB31EK-103X	CAPACITOR	0.01μF,25V
C150	NCB31EK-103X	CAPACITOR	0.01μF,25V
C151	NCB31EK-103X	CAPACITOR	0.01μF,25V
C152	NCB31EK-103X	CAPACITOR	0.01μF,25V
C153	NCB31EK-103X	CAPACITOR	0.01μF,25V
C154	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3002	NDC31HJ-470X	CAPACITOR	47pF,50V
C3003	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3004	NEA71HM-225X	E CAPACITOR	2.2μF,50V
C3005	NEZ0012-476X	E CAPACITOR	47μF,5.5V
C3007	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3008	NCB11CK-105X	CAPACITOR	1μF,16V
C3009	NCB11CK-105X	CAPACITOR	1μF,16V
C3011	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3013	NCS31HJ-561X	CAPACITOR	560pF,50V
C3014	NCS31HJ-561X	CAPACITOR	560pF,50V
C3015	NDC31HJ-121X	CAPACITOR	120pF,50V
C3016	NDC31HJ-470X	CAPACITOR	47pF,50V
C3018	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3019	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3020	NEZ0012-476X	E CAPACITOR	47μF,5.5V
C3021	NCF21CZ-105X	CAPACITOR	1μF,16V
C3023	NCB31EK-153X	CAPACITOR	0.015μF,25V
C3024	NDC31HJ-221X	CAPACITOR	220pF,50V
C3025	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3026	NDC31HJ-270X	CAPACITOR	27pF,50V
C3028	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3029	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3030	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3031	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3032	NCB31EK-103X	CAPACITOR	0.01μF,25V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C3033	NBE21CM-105X	T CAPACITOR	1μF,16V
C3034	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C3035	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3036	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3037	NCB11CK-105X	CAPACITOR	1μF,16V
C3038	NCB31HK-122X	CAPACITOR	0.0012μF,50V
C3039	NBE40JM-226X	T CAPACITOR	22μF,6.3V
C3040	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3041	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3042	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3043	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3045	NEZ0012-476X	E CAPACITOR	47μF,5.5V
C3046	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3047	NDC31HJ-150X	CAPACITOR	15pF,50V
C3049	NDC31HJ-221X	CAPACITOR	220pF,50V
C3052	NDC31HJ-271X	CAPACITOR	270pF,50V
C3053	NDC31HJ-101X	CAPACITOR	100pF,50V
C3054	NDC31HJ-5R0X	CAPACITOR	5pF,50V
C3061	NCB31HK-102X	CAPACITOR	0.001μF,50V
C3062	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3063	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3064	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3065	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3066	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3067	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3068	NCF21CZ-105X	CAPACITOR	1μF,16V
C3069	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3070	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3071	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3072	NCB31HK-102X	CAPACITOR	0.001μF,50V
C3073	NCB31HK-102X	CAPACITOR	0.001μF,50V
C3078	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3079	NCB21CK-224X	CAPACITOR	0.22μF,16V
C3083	NCB31CK-104X	CAPACITOR	0.1μF,16V
C3085	NDC31HJ-220X	CAPACITOR	22pF,50V
C3090	NDC31HJ-101X	CAPACITOR	100pF,50V
C3221	NDC31HJ-121X	CAPACITOR	120pF,50V
C3222	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3223	NDC31HJ-151X	CAPACITOR	150pF,50V
C3224	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
C3231	NDC31HJ-680X	CAPACITOR	68pF,50V
C3232	NDC31HJ-151X	CAPACITOR	150pF,50V
C3233	NDC31HJ-101X	CAPACITOR	100pF,50V
C3234	NDC31HJ-820X	CAPACITOR	82pF,50V
C3235	NDC31HJ-100X	CAPACITOR	10pF,50V
C4031	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4032	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4033	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4034	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4035	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4036	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4037	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4038	NCF21CZ-474X	CAPACITOR	0.47μF,16V
C4039	NCF21CZ-225X	CAPACITOR	2.2μF,16V
C4040	NCF21CZ-105X	CAPACITOR	1μF,16V
C4041	NCF21CZ-105X	CAPACITOR	1μF,16V
C4042	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4043	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C4044	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4045	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4046	NCB31CK-473X	CAPACITOR	0.047μF,16V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C4047	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4048	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4049	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4050	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4051	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4052	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4053	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4054	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C4058	NBE40JM-226X	T CAPACITOR	22μF,6.3V
C4201	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4202	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4203	NCF31EZ-104X	CAPACITOR	0.1μF,25V
C4204	NEA71EM-475X	E CAPACITOR	4.7μF,25V
C4205	NCB11CK-105X	CAPACITOR	1μF,16V
C4206	NCB11CK-105X	CAPACITOR	1μF,16V
C4208	NEA71CM-106X	E CAPACITOR	10μF,16V
C4209	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C4210	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4211	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4212	NDC31HJ-470X	CAPACITOR	47pF,50V
C4213	NDC31HJ-331X	CAPACITOR	330pF,50V
C4214	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4215	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4216	NCB31HK-681X	CAPACITOR	680pF,50V
C4217	NDC31HJ-221X	CAPACITOR	220pF,50V
C4218	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4219	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4220	NCB31EK-223X	CAPACITOR	0.022μF,25V
C4221	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4222	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4223	NCF21CZ-105X	CAPACITOR	1μF,16V
C4224	NDC31HJ-5R0X	CAPACITOR	5pF,50V
C4225	NCB31EK-223X	CAPACITOR	0.022μF,25V
C4226	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4228	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4229	NDC31HJ-220X	CAPACITOR	22pF,50V
C4230	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4231	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4232	NDC31HJ-151X	CAPACITOR	150pF,50V
C4233	NDC31HJ-121X	CAPACITOR	120pF,50V
C4234	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4235	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4236	NCB31CK-273X	CAPACITOR	0.027μF,16V
C4237	NCB31CK-273X	CAPACITOR	0.027μF,16V
C4238	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C4240	NCB31CK-273X	CAPACITOR	0.027μF,16V
C4242	NCB31CK-473X	CAPACITOR	0.047μF,16V
C4243	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C4244	NEA71EM-475X	E CAPACITOR	4.7μF,25V
C4245	NCB31EK-153X	CAPACITOR	0.015μF,25V
C4246	NEA71EM-475X	E CAPACITOR	4.7μF,25V
C4247	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C4248	NCB21CK-224X	CAPACITOR	0.22μF,16V
C4249	NCB21AK-105X	CAPACITOR	1μF,10V
C4250	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4251	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C4252	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4254	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4501	NEA71CM-106X	E CAPACITOR	10μF,16V
C4502	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4503	NEA71CM-107X	E CAPACITOR	100μF,16V

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C4504	NCB31CK-104X	CAPACITOR	0.1μF,16V
C4505	NDC31HJ-330X	CAPACITOR	33pF,50V
C4506	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4507	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4508	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4509	NCB31HK-102X	CAPACITOR	0.001μF,50V
C4510	NCB31EK-103X	CAPACITOR	0.01μF,25V
C4511	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6001	NCB11CK-105X	CAPACITOR	1μF,16V
C6003	NCB11CK-105X	CAPACITOR	1μF,16V
C6005	NDC31HJ-391X	CAPACITOR	390pF,50V
C6006	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6007	NCB11CK-105X	CAPACITOR	1μF,16V
C6008	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6009	NCB21AK-105X	CAPACITOR	1μF,10V
C6010	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6011	NCB31HK-472X	CAPACITOR	0.0047μF,50V
C6012	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C6013	NCB31HK-272X	CAPACITOR	0.0027μF,50V
C6014	NCB31CK-273X	CAPACITOR	0.027μF,16V
C6015	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6016	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6017	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6018	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6019	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6021	NCB11CK-105X	CAPACITOR	1μF,16V
C6022	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C6024	NDC31HJ-471X	CAPACITOR	470pF,50V
C6025	NCB11CK-105X	CAPACITOR	1μF,16V
C6027	NCB11CK-105X	CAPACITOR	1μF,16V
C6028	NCB31HK-102X	CAPACITOR	0.001μF,50V
C6029	NCB11CK-105X	CAPACITOR	1μF,16V
C6030	NCB31HK-102X	CAPACITOR	0.001μF,50V
C6031	NCB11CK-105X	CAPACITOR	1μF,16V
C6033	NCB11CK-105X	CAPACITOR	1μF,16V
C6034	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C6035	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6036	NCB11CK-105X	CAPACITOR	1μF,16V
C6037	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C6039	NCB11CK-105X	CAPACITOR	1μF,16V
C6041	NCB11CK-105X	CAPACITOR	1μF,16V
C6042	NCB11CK-105X	CAPACITOR	1μF,16V
C6043	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C6045	NCB11CK-105X	CAPACITOR	1μF,16V
C6047	NCB11CK-105X	CAPACITOR	1μF,16V
C6051	NCB11CK-105X	CAPACITOR	1μF,16V
C6052	NCB11CK-105X	CAPACITOR	1μF,16V
C6055	NCB11CK-105X	CAPACITOR	1μF,16V
C6056	NCB31HK-222X	CAPACITOR	0.0022μF,50V
C6057	NCB11CK-105X	CAPACITOR	1μF,16V
C6058	NCB11CK-105X	CAPACITOR	1μF,16V
C6060	NCB21CK-224X	CAPACITOR	0.22μF,16V
C6061	NCB21CK-224X	CAPACITOR	0.22μF,16V
C6062	NCF21CZ-105X	CAPACITOR	1μF,16V
C6063	NCB31CK-104X	CAPACITOR	0.1μF,16V
C6065	NCB31EK-103X	CAPACITOR	0.01μF,25V
C6067	NEA71CM-106X	E CAPACITOR	10μF,16V
C6068	NCB11CK-105X	CAPACITOR	1μF,16V
C6201	NBE20JM-106X	T CAPACITOR,E,F	10μF,6.3V
L101	NQL034K-330X	COIL	33μH
L102	NQL184J-100X	COIL	10μH

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
L3001	NQL144K-470X	COIL	47μH
L3002	NQL184J-101X	COIL	100μH
L3003	NQL144K-101X	COIL	100μH
L3004	NQL085J-390X	COIL	39μH
L3006	NQL085J-270X	COIL	27μH
L3007	NQL184J-100X	COIL	10μH
L3009	NQL184J-271X	COIL	270μH
L3010	NQL144K-220X	COIL	22μH
L3011	NQL085J-330X	COIL	33μH
L3015	NQL085J-820X	COIL	82μH
L3208	NQL085J-101X	COIL	100μH
L3231	NQL184J-271X	COIL	270μH
L3232	NQL085J-470X	COIL	47μH
L4005	NQL144K-220X	COIL	22μH
L4006	NQL034K-470X	COIL	47μH
L4201	NQL034K-220X	COIL	22μH
L4202	NQL144K-220X	COIL	22μH
L4203	NQL184J-181X	COIL	180μH
L4204	NQL184J-270X	COIL	27μH
L4205	NQL184J-221X	COIL	220μH
L4206	NQL184J-151X	COIL	150μH
L4207	NQL144K-220X	COIL	22μH
L4501	NQL034K-220X	COIL	22μH
L4502	NQL034K-220X	COIL	22μH
L6001	NQL17CM-100X	COIL	10μH
L6002	NQL17CM-100X	COIL	10μH
L6003	NQL17CM-390X	COIL	39μH
L6004	NQL17CM-100X	COIL	10μH
L6005	NQL144K-331X	COIL	330μH
L6006	NQL164K-470X	COIL	47μH
L6007	NQL17CM-680X	COIL	68μH
L6008	NQL03BK-150X	COIL	15μH
L6009	NQL17CM-470X	COIL	47μH
L6010	NQL03BK-150X	COIL	15μH
L6011	NQL17CM-221X	COIL	220μH
L6013	NQL164K-470X	COIL	47μH
L6014	NQL164K-470X	COIL	47μH
L6016	NQL144K-101X	COIL	100μH
X101	QAX0342-001	CRYSTAL RESONATOR	
X102	QAX0008-001	CRYSTAL RESONATOR	
X3001	PEVB0615	CRYSTAL RESONATOR	
CN11	QGA1002F1-13X	CONNECTOR	
CN12	QGF0507F1-10X	FPC CONNECTOR,A,B	
	QGF0507F1-14X	FPC CONNECTOR,C,D,E,F	
CN13	QGF0507F1-12X	FPC CONNECTOR	
CN14	QGA1201F2-02X	CONNECTOR,E,F	
CN15	QGF0503C1-22X	FPC CONNECTOR	
CN16	QGF0507F1-10X	CONNECTOR	
CN21	QGB0501M1-60X	CONNECTOR	
CN22	PEWR0835	LEAD BUS CONNCTOR,CCD ※	
CN23	QGF0501F2-07X	FPC CONNECTOR	
CN25	QGB0801K2-30X	CONNECTOR	
⚠ CP6001	ICP-S0.5-X	CIRCUIT PROTECTOR,C,D,E,F	
⚠ CP6002	ICP-S1.8-X	CIRCUIT PROTECTOR	
⚠ CP6003	ICP-S1.8-X	CIRCUIT PROTECTOR	
⚠ CP6004	ICP-S0.5-X	CIRCUIT PROTECTOR	
SD1	LY40558-001A	SHIELD SHEET	
SD2	LY40559-001A	SHIELD SHEET	

※ NOT INCL. MAIN1 BOARD ASSY

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
		– SUB BOARD ASSEMBLY –	
PW	YB20812A	SUB BOARD ASSY	
R6101	NRSA63J-1R0X	MG RESISTOR	1Ω,1/16W
C6101	NCB11CK-225X	CAPACITOR	2.2μF,16V

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CCD BOARD ASSEMBLY <02>

PW2	YB10210NA2-01	CCD BOARD ASSY,A,B	
	YB10210NC2-01	CCD BOARD ASSY,E,F	
	YB10210NB2-01	CCD BOARD ASSY,C,D	
IC5201	UPD16510GR	IC	
IC5202	JCY0035	IC	
IC5203	AN2018S	IC	
Q5203	2SC3931/CD/-X	TRANSISTOR	
Q5204	2SC4617/QR/-X	TRANSISTOR	
Q5205	2SC4617/QR/-X	TRANSISTOR	
D5202	MA8091/L/-X	ZENER DIODE	
R5205	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5206	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5207	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5208	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5209	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R5210	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R5213	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R5214	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R5215	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R5216	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R5217	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5218	NRSA63J-560X	MG RESISTOR	56Ω,1/16W
R5219	NRSA63J-560X	MG RESISTOR	56Ω,1/16W
R5220	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5221	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R5222	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R5223	NRSA63J-203X	MG RESISTOR	20kΩ,1/16W
R5228	NRSA63J-562X	MG RESISTOR	5.6kΩ,1/16W
R5229	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R5232	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5233	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5234	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5235	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R5238	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
C5201	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5202	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5205	NCB21EK-104X	CAPACITOR	0.1μF,25V
C5206	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5209	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5210	NEA70JM-226X	E CAPACITOR	22μF,6.3V
C5211	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5212	NEA71EM-475X	E CAPACITOR	4.7μF,25V
C5213	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5214	NEA71EM-475X	E CAPACITOR	4.7μF,25V
C5215	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5217	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5218	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5219	NCB31CK-223X	CAPACITOR	0.022μF,16V
C5220	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5223	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5224	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5225	NDC31HK-470X	CAPACITOR	47pF,50V
C5226	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5227	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5228	NCB31CK-104X	CAPACITOR	0.1μF,16V
C5229	NDC31HK-470X	CAPACITOR	47pF,50V
C5230	NDC31HK-101X	CAPACITOR	100pF,50V
C5231	NBE40JM-226X	T CAPACITOR	22μF,6.3V
C5234	NCB31HK-102X	CAPACITOR	0.001μF,50V
C5235	NBE41AM-106X	T CAPACITOR	10μF,10V
L5201	NQL164K-220X	COIL	22μH
L5202	NQL164K-220X	COIL	22μH
L5203	NQL164K-220X	COIL	22μH
L5204	NQL164K-220X	COIL	22μH
L5205	NQL164K-220X	COIL	22μH
L5206	NQR0129-001X	FERRITE BEAD	
L5207	NQR0129-001X	FERRITE BEAD	
L5208	NQR0129-001X	FERRITE BEAD	
X5201	NAX0015-001X	CXO	
CN5201	PEMC1071	CCD SOCKET	

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SENSOR BOARD ASSEMBLY <03>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PW	YB10211A-01	SENSOR BOARD ASSY
IC1201	BA8400FV	IC
⚠ IC1601	BA6865KV	IC
IC2001	BA7751AFS	IC
IC2071	BA15218F-XE	IC
IC3501	M52385FP	IC
Q1001	SPI-336-95-CD-X	IC(PHOTO SENSOR
Q1002	SPI-336-95-CD-X	IC(PHOTO SENSOR
Q1003	PN207-/NCLF/VI	PHOTO TRANSISTOR
Q1004	PN207-/NCLF/VI	PHOTO TRANSISTOR
Q2001	2SA1774/QR/-X	TRANSISTOR
Q2002	2SA1774/QR/-X	TRANSISTOR
Q2003	DTC144EE	TRANSISTOR
Q2004	2SC4097/QR/-X	TRANSISTOR
Q2005	UMX1N	PAIR TRANSISTOR
Q2006	DTA114EE	TRANSISTOR
Q2007	DTC144EE	TRANSISTOR
Q2008	DTC144EE	TRANSISTOR
Q2009	DTC144EE	TRANSISTOR
Q2010	DTC144EE	TRANSISTOR
Q2019	DTC144EE	TRANSISTOR
Q2020	DTC144EE	TRANSISTOR
Q3501	2SD2114K/UV/-X	TRANSISTOR
Q3502	2SD2114K/UV/-X	TRANSISTOR
Q3503	2SD2114K/UV/-X	TRANSISTOR
Q3504	2SD2114K/UV/-X	TRANSISTOR
Q3505	DTC144EE	TRANSISTOR
Q3506	DTC144EE	TRANSISTOR
Q3507	DTC144EE	TRANSISTOR
Q3509	2SC4617/QRS/-X	TRANSISTOR
Q3901	2SC4617/R/-X	TRANSISTOR

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q3902	2SC4617/R/-X	TRANSISTOR	
Q3903	DTC114EE	TRANSISTOR	
Q3904	DTA114EE	TRANSISTOR	
Q3905	DTC144EE	TRANSISTOR	
Q3906	DTC144EE	TRANSISTOR	
QA1601	MDC02	TR ARRAY	
QA1602	MDC02	TR ARRAY	
D1001	LN57-/LF/VI	LE DIODE	
R1201	NRSA63J-684X	MG RESISTOR	680kΩ,1/16W
R1202	NRSA63J-821X	MG RESISTOR	820Ω,1/16W
R1203	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R1204	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R1601	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1602	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R1603	NRSA63J-152X	MG RESISTOR	1.5kΩ,1/16W
R1604	NRSA63J-224X	MG RESISTOR	220kΩ,1/16W
R1605	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R1606	NRV142F-R33X	CMF RESISTOR	0.33Ω,1/4W
R1607	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R1608	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R1609	NRS12BK-R68W	MG RESISTOR	0.68Ω,1/2W
R1610	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1611	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1612	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R1613	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R1614	NRSA63J-154X	MG RESISTOR	150kΩ,1/16W
R1615	NRSA63J-474X	MG RESISTOR	470kΩ,1/16W
R1616	NRVA63D-202X	CMF RESISTOR	2kΩ,1/16W
R1617	NRSA63J-473X	MG RESISTOR	47kΩ,1/16W
R1618	NRSA63J-183X	MG RESISTOR	18kΩ,1/16W
R1619	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R1620	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1621	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1622	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1623	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1624	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R1625	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
R1626	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
R1627	NRSA63J-511X	MG RESISTOR	510Ω,1/16W
R1628	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
R1629	NRSA63J-684X	MG RESISTOR	680kΩ,1/16W
R2001	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2002	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R2004	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2006	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2007	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2008	NRSA63J-3R3X	MG RESISTOR	3.3Ω,1/16W
R2009	NRVA63D-512X	CMF RESISTOR	5.1kΩ,1/16W
R2010	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R2011	NRVA63D-113X	CMF RESISTOR	11kΩ,1/16W
R2012	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R2013	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R2014	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2016	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R2017	NRSA63J-124X	MG RESISTOR	120kΩ,1/16W
R2018	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2020	NRSA63J-683X	MG RESISTOR	68kΩ,1/16W
R2021	NRSA63J-122X	MG RESISTOR	1.2kΩ,1/16W
R2022	NRSA63J-470X	MG RESISTOR	47Ω,1/16W
R2023	NRSA63J-823X	MG RESISTOR	82kΩ,1/16W
R2024	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R2025	NRSA63J-334X	MG RESISTOR	330kΩ,1/16W
R2026	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R2027	NRSA63J-682X	MG RESISTOR	6.8kΩ,1/16W
R2028	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2029	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2031	NRSA63J-155X	MG RESISTOR	1.5MΩ,1/16W
R2032	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R2033	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R2034	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2035	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2036	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2037	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2038	NRSA63J-820X	MG RESISTOR	82Ω,1/16W
R2039	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2041	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2043	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2052	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2057	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R2058	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R2071	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2073	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R2075	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2076	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R2077	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R2078	NRSA63J-123X	MG RESISTOR	12kΩ,1/16W
R2079	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R2080	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R2082	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2085	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R2086	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R3501	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3503	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3504	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3506	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3508	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3509	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3513	NRSA63J-273X	MG RESISTOR	27kΩ,1/16W
R3514	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R3515	NRSA63J-243X	MG RESISTOR	24kΩ,1/16W
R3519	NRSA63J-681X	MG RESISTOR	680Ω,1/16W
R3520	NRSA63J-332X	MG RESISTOR	3.3kΩ,1/16W
R3522	NRSA63J-822X	MG RESISTOR	8.2kΩ,1/16W
R3901	NRSA63J-182X	MG RESISTOR	1.8kΩ,1/16W
R3903	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R3904	NRSA63J-393X	MG RESISTOR	39kΩ,1/16W
R3905	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
R3906	NRSA63J-100X	MG RESISTOR	10Ω,1/16W
C1201	NEA71CM-106X	E CAPACITOR	10μF,16V
C1202	NEA71CM-106X	E CAPACITOR	10μF,16V
C1204	NCB31HK-102X	CAPACITOR	0.001μF,50V
C1205	NCF21CZ-105X	CAPACITOR	1μF,16V
C1206	NBE41AM-106X	T CAPACITOR	10μF,10V
C1601	NCB31EK-103X	CAPACITOR	0.01μF,25V
C1602	NBE41AM-106X	T CAPACITOR	10μF,10V
C1603	NBE41AM-106X	T CAPACITOR	10μF,10V
C1604	NCB31HK-681X	CAPACITOR	680pF,50V
C1605	NCB21CK-474X	CAPACITOR	0.47μF,16V
C1606	NCB31HK-152X	CAPACITOR	0.0015μF,50V
C1607	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1608	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1609	NCB31CK-223X	CAPACITOR	0.022μF,16V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C1610	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1611	NCF21CZ-105X	CAPACITOR	1μF,16V
C1612	NCF21CZ-105X	CAPACITOR	1μF,16V
C1613	NCF21CZ-105X	CAPACITOR	1μF,16V
C1614	NBE41CM-106X	T CAPACITOR	10μF,16V
C1615	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1616	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1617	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1618	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1619	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1620	NCB31CK-223X	CAPACITOR	0.022μF,16V
C1621	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1622	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1623	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1624	NCB31EK-472X	CAPACITOR	0.0047μF,25V
C1625	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1626	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1627	NCB31CK-473X	CAPACITOR	0.047μF,16V
C1628	NCB31CK-104X	CAPACITOR	0.1μF,16V
C1633	NCB31CK-104X	CAPACITOR	0.1μF,16V
C2001	NBE41AM-226X	T CAPACITOR	22μF,10V
C2002	NCB31HK-682X	CAPACITOR	0.0068μF,50V
C2003	NDC31HJ-471X	CAPACITOR	470pF,50V
C2004	NFV41HJ-273X	MPPS CAPACITOR	0.027μF,50V
C2005	NDC31HJ-331X	CAPACITOR	330pF,50V
C2006	NCF21CZ-105X	CAPACITOR	1μF,16V
C2007	NDC31HJ-331X	CAPACITOR	330pF,50V
C2008	NDC31HJ-331X	CAPACITOR	330pF,50V
C2009	NCB31EK-103X	CAPACITOR	0.01μF,25V
C2010	NBE21CM-105X	T CAPACITOR	1μF,16V
C2011	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C2012	NCB31HK-681X	CAPACITOR	680pF,50V
C2013	NCB31EK-103X	CAPACITOR	0.01μF,25V
C2014	NBE21VM-684X	T CAPACITOR	0.68μF,35V
C2015	NBE40JM-476X	T CAPACITOR	47μF,6.3V
C2016	NCB21EK-104X	CAPACITOR	0.1μF,25V
C2018	NCF21CZ-105X	CAPACITOR	1μF,16V
C2021	NEA70GM-476X	E CAPACITOR	47μF,4.0V
C2022	NEA70GM-476X	E CAPACITOR	47μF,4.0V
C2023	NBE20JM-475X	T CAPACITOR	4.7μF,6.3V
C2024	NEA70GM-476X	E CAPACITOR	47μF,4.0V
C2025	NBE40JM-476X	T CAPACITOR	47μF,6.3V
C2071	NBE40JM-476X	T CAPACITOR	47μF,6.3V
C2074	NCB11CK-105X	CAPACITOR	1μF,16V
C2075	NCB31EK-223X	CAPACITOR	0.022μF,25V
C2077	NDC31HJ-471X	CAPACITOR	470pF,50V
C2079	NBE21EM-474X	T CAPACITOR	0.47μF,25V
C2080	NCB31EK-223X	CAPACITOR	0.022μF,25V
C2082	NDC31HJ-331X	CAPACITOR	330pF,50V
C3501	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C3502	NCF21CZ-105X	CAPACITOR	1μF,16V
C3503	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3504	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3505	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3506	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3507	NCF21CZ-105X	CAPACITOR	1μF,16V
C3508	NCB31EK-153X	CAPACITOR	0.015μF,25V
C3509	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3510	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3511	NDC31HJ-180X	CAPACITOR	18pF,50V
C3512	NDC31HJ-8R0X	CAPACITOR	8pF,50V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C3513	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3514	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3515	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3516	NDC31HJ-150X	CAPACITOR	15pF,50V
C3517	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3518	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3520	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3521	NDC31HJ-100X	CAPACITOR	10pF,50V
C3522	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3523	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C3524	NDC31HJ-180X	CAPACITOR	18pF,50V
C3525	NCB31CK-473X	CAPACITOR	0.047μF,16V
C3901	NDC31HJ-151X	CAPACITOR	150pF,50V
C3903	NCB31EK-103X	CAPACITOR	0.01μF,25V
C3904	NDC31HJ-101X	CAPACITOR	100pF,50V
C3905	NDC31HJ-101X	CAPACITOR	100pF,50V
L2001	NQL164K-101X	COIL	100μH
L3501	NQL144K-101X	COIL	100μH
L3901	NQL144K-101X	COIL	100μH
L3902	NQL184J-560X	COIL	56μH
L3903	NQL184J-560X	COIL	56μH
L3904	NQL184K-1R5X	COIL	1.5μH
SW1001	NSW0037-001X	PUSH SWITCH	
SW1002	NSW0036-001X	PUSH SWITCH	
T2001	NQR0002-001X	BIAS COIL	
CN1	QGF0503F2-10X	FPC CONNECTOR	
CN2	QGF0503F1-06X	FPC CONNECTOR	
CN3	QGF0507F2-18X	FPC CONNECTOR	
CN4	QGA1201F2-02X	CONNECTOR	
CN5	QGF0503F2-11X	FPC CONNECTOR	
CN6	QGB0501L1-60X	CONNECTOR	
CN7	QGF0507F2-11X	FPC CONNECTOR	
CN8	QGA1201F2-05X	CONNECTOR	
SD1	LY40493-001A	SHIELD CASE	
SD2	LY40546-001A	SHIELD SHEET	

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REAR BOARD ASSEMBLY <05>

PW	LY30395-001A	REAR BOARD ASSY E,F	
	LY30395-002A	REAR BOARD ASSY A,B,C,D	

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E.VF BOARD ASSEMBLY(GR-AX230U/U-C TYPE T) <10>

PW	YB20776A-01	E.VF BOARD ASSY	
IC7001	BA7149F-XE	IC	
Q7001	2SD968A(RS)	PH TRANSISTOR	
Q7002	2SA1748(QR)	PH TRANSISTOR	
Q7003	2SA1748(QR)	PH TRANSISTOR	
D7001	MA142WA	DIODE	
R7002	NRSA02J-3R9X	MG RESISTOR	3.9Ω,1/10W
R7003	NRVA02D-153X	CMF RESISTOR	15kΩ,1/10W

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R7005	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7006	NRSA02J-113X	MG RESISTOR	11kΩ,1/10W
R7007	NRSA02J-330X	MG RESISTOR	33Ω,1/10W
R7008	NRSA02J-394X	MG RESISTOR	390kΩ,1/10W
R7009	NRSA02J-103X	MG RESISTOR	10kΩ,1/10W
R7010	NRVA02D-104X	CMF RESISTOR	100kΩ,1/10W
R7011	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R7012	NRSA02J-221X	MG RESISTOR	220Ω,1/10W
R7013	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7014	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R7015	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R7016	NRSA02J-122X	MG RESISTOR	1.2kΩ,1/10W
R7017	NRSA02J-472X	MG RESISTOR	4.7kΩ,1/10W
R7018	NRSA02J-223X	MG RESISTOR	22kΩ,1/10W
R7019	NRSA02J-120X	MG RESISTOR	12Ω,1/10W
R7020	NRS181J-685X	MG RESISTOR	6.8MΩ,1/8W
R7021	NRSA02J-475X	MG RESISTOR	4.7MΩ,1/10W
R7022	NRSA02J-475X	MG RESISTOR	4.7MΩ,1/10W
R7023	NRSA02J-564X	MG RESISTOR	560kΩ,1/10W
R7024	NRSA02J-105X	MG RESISTOR	1MΩ,1/10W
R7025	NRSA02J-275X	MG RESISTOR	2.7MΩ,1/10W
R7026	NRSA02J-275X	MG RESISTOR	2.7MΩ,1/10W
R7029	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
R7030	NRSA02J-102X	MG RESISTOR	1kΩ,1/10W
VR7001	NVP0001-221X	TRIM RESISTOR,V SIZE	
VR7002	NVP0001-225X	TRIM RESISTOR,BRIGHT	
VR7003	PERE0595-565	V RESISTOR,FOCUS	
C7001	QFV21HJ-104AZ	F CAPACITOR	0.1μF,50V
C7002	PECA1131-A107	E CAPACITOR	100μF,10V
C7003	PECA1131-A107	E CAPACITOR	100μF,10V
C7004	PECA1132-A107	E CAPACITOR	100μF,10V
C7005	NCF21CZ-105X	CAPACITOR	1μF,16V
C7006	NCB21EK-153X	CAPACITOR	0.015μF,25V
C7007	NCB11CK-105X	CAPACITOR	1μF,16V
C7008	NCF21CZ-105X	CAPACITOR	1μF,16V
C7009	PECA1131-A107	E CAPACITOR	100μF,10V
C7010	PECA1135-Y	CAPACITOR	5600pF,100V
C7011	NDC21HJ-180X	CAPACITOR	18pF,50V
C7012	QEKC1HM-105	E CAPACITOR	1μF,50V
C7013	NCF21HZ-104X	CAPACITOR	0.1μF,50V
C7014	NCF21HZ-104X	CAPACITOR	0.1μF,50V
C7015	QCZ0136-151Z	CAPACITOR	150pF,1kV
C7016	PECA1133	CAPACITOR	330pF,500V
L7001	PELN1175	COIL	
L7002	PU49993-101	COIL	100μH
L7003	PELN1101-680JY	COIL	68μH
⚠ T7001	QQH0011-001	FB TRANSF	
CN7001	PEMC0856-4	CONNECTOR	
CN7002	PEMC1004-006	CONNECTOR	
CN7003	QNZ0010-001	CRT SOCKET	

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OPERATION(DECK)BOARD ASSEMBLY <20>

PW	LY10048-001A	OPERATION(DECK)BOARD ASSY

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	

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OPERATION(CAMERA)BOARD ASSEMBLY <21>

PW	LY10056-001A	OPERATION(CAMERA)BOARD ASSY

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IR BOARD ASSEMBLY <22>

PW	QAL0088-001	IR BOARD ASSY,E,F
	QAL0088-004	IR BOARD ASSY,A,B,C,D

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E.VF BOARD ASSEMBLY(GR-AX230U/U-C TYPE M) <50>

PW	YQ32236-501	E.VF BOARD ASSY	
IC1	BA7149F	IC	
Q1	2SA1037K	TRANSISTOR,TR1	
	or 2SA1179	TRANSISTOR,TR1	
	or 2SA1235	TRANSISTOR,TR1	
Q2	2SC4132	TRANSISTOR,TR2	
Q3	2SC4618	TRANSISTOR,TR3	
	or 2SC4655	TRANSISTOR,TR3	
D1	RLS245	DIODE	
R1	YQ31803-501	RESISTOR	9.1kΩ,1/10W
R2	QRSA08G-333YN	RESISTOR	33kΩ,1/10W
R3	QRSA08J-3R9YN	RESISTOR	3.9Ω,1/10W
R4	QRSA08J-390YN	RESISTOR	39Ω,1/10W
R5	YU30595-111	RESISTOR	390Ω,1/10W
R6	YU30595-113	RESISTOR	91kΩ,1/10W
R7	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R8	YQ31803-502	RESISTOR	2.2kΩ,1/10W
R9	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
VR1	YQ31803-504	V RESISTOR,V SIZE	470Ω
VR2	YQ31803-505	V RESISTOR,H HOLD	47kΩ
VR4	YQ31803-506	V RESISTOR,BRIGHT	1MΩ
R10	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R11	QRSA08J-330YN	RESISTOR	33Ω,1/10W
R12	QRSA08J-113YN	RESISTOR	11kΩ,1/10W
R13	YQ31803-503	RESISTOR	3.9kΩ,1/10W
R14	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R15	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R16	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R17	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R18	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R19	QRSA08F-103YN	RESISTOR	10kΩ,1/10W
R20	QRSA08F-152YN	RESISTOR	1.5kΩ,1/10W
R21	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
R22	QRSA08J-275YN	RESISTOR	2.7MΩ,1/10W
R23	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R24	QRSA08J-154YN	RESISTOR	150kΩ,1/10W
R25	QRSA08J-2R7YN	RESISTOR	2.7Ω,1/10W
R26	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R27	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
C1	YQ31803-507	CAPACITOR	0.22μF,16V
C2	YQ31304-503	CAPACITOR	1μF,16V
C3	YQ31304-504	CAPACITOR	1500pF,50V
C4	YQ31304-503	CAPACITOR	1μF,16V
C5	YQ31304-506	E CAPACITOR	100μF,10V
C6	YQ31304-506	E CAPACITOR	100μF,10V
C7	YQ31304-506	E CAPACITOR	100μF,10V
C8	YQ31304-503	CAPACITOR	1μF,16V
C9	YQ31392-501	CAPACITOR	100pF,16V
C10	YU30531-163	CAPACITOR	0.047μF
C11	QER61HM-100	E CAPACITOR	10pF,50V
C12	YQ31803-508	F CAPACITOR	6200pF,100V
C13	YQ31304-506	E CAPACITOR	100μF,10V
C14	YQ31304-507	CAPACITOR	1500pF,630V
L1	YQ30723-115	COIL	100μH
TH1	YU30236-110	THERMISTOR	
WR1	YQ32236-680	FPC, CN1-MAIN1 CN12	
⚠ FBT1	YQ31803-550	FLY BACK TRANS	
HLC1	YQ31803-560	H.COIL	
CN1	YQ31803-570	CONNECTOR	
CN2	YQ31803-571	CONNECTOR	
CN3	YQ31803-572	CONNECTOR	

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VF BOARD ASSEMBLY(GR-AX430U/U-C,AX730U/U-C) <51>

PW1	YB20807A1	VF BOARD ASSY	
IC7001	FA7615CE	IC	
IC7002	UPC358GR	IC	
IC7003	CXA2503AR	IC	
IC7004	TK71230M	IC	
IC7005	NM25C020LZEM8	IC	
Q7001	DTC143ZE	TRANSISTOR	
	or RN1106	TRANSISTOR	
Q7002	2SC4655/BC/-X	TRANSISTOR	
Q7003	DTA114YE	TRANSISTOR	
	or RN2107	TRANSISTOR	
D7001	MA111	DIODE	
D7002	MA365	VARI CAP DIODE	
R7001	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R7002	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R7003	NRVA63D-473X	CMF RESISTOR	47kΩ,1/16W
R7005	NRVA63D-823X	CMF RESISTOR	82kΩ,1/16W
R7006	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R7007	NRSA63J-101X	MG RESISTOR	100Ω,1/16W
R7008	NRSA63J-472X	MG RESISTOR	4.7kΩ,1/16W
R7009	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R7010	NRVA63D-223X	CMF RESISTOR	22kΩ,1/16W
R7011	NRVA63D-333X	CMF RESISTOR	33kΩ,1/16W
R7012	NRSA63J-105X	MG RESISTOR	1MΩ,1/16W
R7013	NRVA63D-123X	CMF RESISTOR	12kΩ,1/16W
R7014	NRSA63J-153X	MG RESISTOR	15kΩ,1/16W
R7015	NRVA63D-473X	CMF RESISTOR	47kΩ,1/16W
R7016	NRVA63D-683X	CMF RESISTOR	68kΩ,1/16W
R7017	NRSA63J-824X	MG RESISTOR	820kΩ,1/16W
R7018	NRVA63D-563X	CMF RESISTOR	56kΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R7019	NRVA63D-682X	CMF RESISTOR	6.8kΩ,1/16W
R7020	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
R7021	NRVA63D-682X	CMF RESISTOR	6.8kΩ,1/16W
R7022	NRVA63D-472X	CMF RESISTOR	4.7kΩ,1/16W
R7023	NRVA63D-151X	CMF RESISTOR	150Ω,1/16W
R7024	NRVA63D-273X	CMF RESISTOR	27kΩ,1/16W
R7025	NRVA63D-563X	CMF RESISTOR	56kΩ,1/16W
R7026	NRVA63D-563X	CMF RESISTOR	56kΩ,1/16W
R7031	NRSA63J-563X	MG RESISTOR	56kΩ,1/16W
R7032	NRSA63J-223X	MG RESISTOR	22kΩ,1/16W
R7033	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R7034	NRSA63J-222X	MG RESISTOR	2.2kΩ,1/16W
R7035	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7036	NRSA63J-272X	MG RESISTOR	2.7kΩ,1/16W
R7037	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7039	NRSA63J-561X	MG RESISTOR	560Ω,1/16W
R7041	NRVA63D-272X	CMF RESISTOR	2.7kΩ,1/16W
R7042	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R7043	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R7044	NRVA63D-153X	CMF RESISTOR	15kΩ,1/16W
R7045	NRSA63J-102X	MG RESISTOR	1kΩ,1/16W
R7046	NRSA63J-333X	MG RESISTOR	33kΩ,1/16W
R7047	NRSA63J-274X	MG RESISTOR	270kΩ,1/16W
R7048	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R7049	NRSA63J-103X	MG RESISTOR	10kΩ,1/16W
R7050	NRVA63D-122X	CMF RESISTOR	1.2kΩ,1/16W
R7051	NRVA63D-182X	CMF RESISTOR	1.8kΩ,1/16W
R7054	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
R7055	NRSA63J-0R0X	MG RESISTOR	0Ω,1/16W
C7001	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7003	NDC31HJ-330X	CAPACITOR	33pF,50V
C7004	NDC21HJ-222X	CAPACITOR	0.0022μF,50V
C7005	NBE50GM-686X	T CAPACITOR	68μF,4.0V
C7006	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7008	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7009	NCF21CZ-105X	CAPACITOR	1μF,16V
C7010	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7011	NCF21CZ-105X	CAPACITOR	1μF,16V
C7012	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7014	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7015	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C7016	NCB11CK-105X	CAPACITOR	1μF,16V
C7017	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7018	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C7019	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7020	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7021	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7024	NCB11CK-105X	CAPACITOR	1μF,16V
C7025	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7027	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7028	NBE41CM-106X	T CAPACITOR	10μF,16V
C7029	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7030	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7031	NCF21CZ-105X	CAPACITOR	1μF,16V
C7032	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7033	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7034	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7035	NCB21EK-333X	CAPACITOR	0.033μF,25V
C7036	NCB11CK-105X	CAPACITOR	1μF,16V
C7037	NCF21CZ-105X	CAPACITOR	1μF,16V
C7038	NDC31HK-221X	CAPACITOR	220pF,50V

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C7039	NDC31HJ-680X	CAPACITOR	68pF,50V
C7041	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C7042	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7043	NCF11CZ-225X	CAPACITOR	2.2μF,16V
C7044	NCF21CZ-105X	CAPACITOR	1μF,16V
C7046	NCB11CK-105X	CAPACITOR	1μF,16V
C7047	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7048	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7049	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7050	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C7051	NCB31EK-103X	CAPACITOR	0.01μF,25V
L7001	NQL144K-220X	COIL	22μH
L7002	NQL144K-220X	COIL	22μH
L7003	NQL184J-120X	COIL	12μH
L7004	NQL144K-221X	COIL	220μH
CN7001	QGF0503C1-14X	FPC CONNECTOR	
CN7002	QGB1002J1-10X	CONNECTOR	
CN7003	QGF0503C1-16X	FPC CONNECTOR	
CN7004	QGA1001F1-06X	CONNECTOR	

:**********

BL BOARD ASSEMBLY(GR-AX430U/U-C,AX730U/U-C) <52>

PW2	YB20807A2	BL BOARD ASSY	
Q7301	2SK2742	POWER MOS FET	
R7301	NRSA63J-104X	MG RESISTOR	100kΩ,1/16W
C7301	NBE71CM-336X	T CAPACITOR	33μF,16V
C7302	NCF31CZ-104X	CAPACITOR	0.1μF,16V
L7301	NQL144K-220X	COIL	22μH
T7301	NQS0009-001X	SW TRANSF	
BL7301	NLL0001-001	LAMP	
CN7301	QGB1002K1-10X	CONNECTOR	

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION

SECTION 6
TECHNICAL INFORMATION

6.1 EMERGENCY DISPLAY

Whenever some abnormal signal is supplied to mechacon CPU, an error number (E 04, for example) displayed in the electronic view finder and LCD screen.

In an emergency mode, all operations except turning on/off the POWER switch are ineffectual.

E. VF/LCD	Symptom	Mode when observed	Resulting mode
E07	Short circuit of capstan MDA	Power ON	Power OFF
E06	CAPSTAN FG input absent	EDIT	Power OFF
E04	DRUM FF input absent	DRUM rotation	Power OFF
E03	SUPPLY REEL FG input absent	REC, PLAY, SEARCH, FF	UNLOADING →Power OFF
E02	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING	Power OFF
E01	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING	Power OFF
E00	Overtime the programming transaction	REC, PLAY	Power OFF

6.2 DEMONSTRATION MODE

This model has the DEMONSTRATION mode.

1) How to set the DEMONSTRATION mode.

The camera can be entered into the DEMONSTRATION mode by setting on the MOVIE MENU screen appearing in the viewfinder.

When entering the camera into the DEMONSTRATION mode, pay heed to the following matters.

1. The SELECT DIAL is set at except the "LOCK" position.
2. No cassette is set in the camcorder or a cassette is set in the camcorder but it is protected from recording

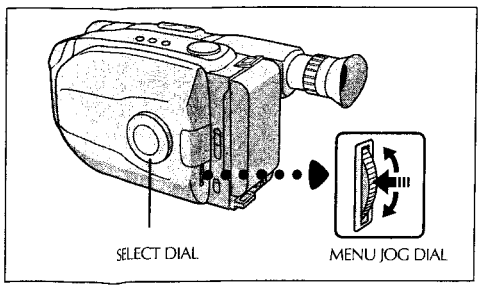
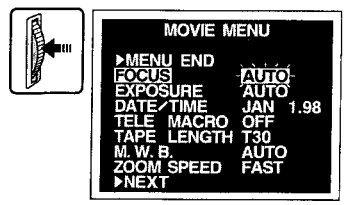


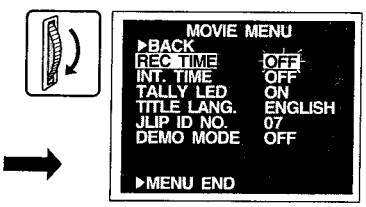
Fig. 6-1

1. Set the POWER switch to turn on the "CAMERA".
   Assume that the SELECT DIAL is set at "FG".
   Press the MENU JOG DIAL once.
   The first page of the MOVIE MENU appears in the viewfinder.



Menu Screen 1

2. Turn the MENU JOG DIAL in the direction of the arrow to set the cursor at "NEXT".
   The second page of the MOVIE MENU appears in the viewfinder.



Menu Screen 2

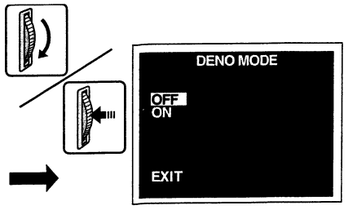
<Flow chart>

1. FG : FOG
2. ND : ND EFFECT
3. SEPIA
4. AUTO RELEASE
5. FADER (BLACK)
6. WIDE
7. TITLE (Note: Eight titles appear one after another in this order.)
   - HAPPLY BIRTHDAY
   - OUR VACATION
   - MERRY CHRISTMAS
   - A SPECIAL DAY
   - HAPPY HOLIDAYS
   - OUR NEW BABY
   - WEDDING DAY
   - CONGRATULATIONS
   - No display

Fig. 6-2

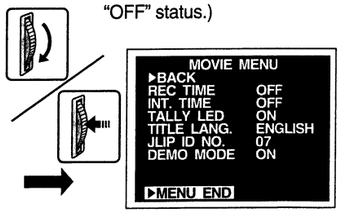
2) How to cancel the DEMONSTRATION mode.
To cancel the DEMONSTRATION mode, turn the POWER switch off ("POWER OFF").

3. Turn the MENU JOG DIAL in the direction of the arrow to set the cursor at "DEMO MODE". Then, press the MENU JOG DIAL once. The third page of the DEMO MODE appears in the viewfinder.



Menu Screen 3

4. Turn the MENU JOG DIAL in the direction of the arrow to set the cursor at "ON". Then, press the MENU JOG DIAL once.
The fourth page of the MOVIE MENU appears in the viewfinder.
("DEMO MODE" is switched "ON" from "OFF" status.)



Menu Screen 4

5. Press the MENU JOG DIAL once. The camcorder automatically enters the DEMONSTRATION mode and it repeats demonstration operation.
While the camcorder is performing demonstration, all operations except turning on/off the POWER switch are ineffectual.

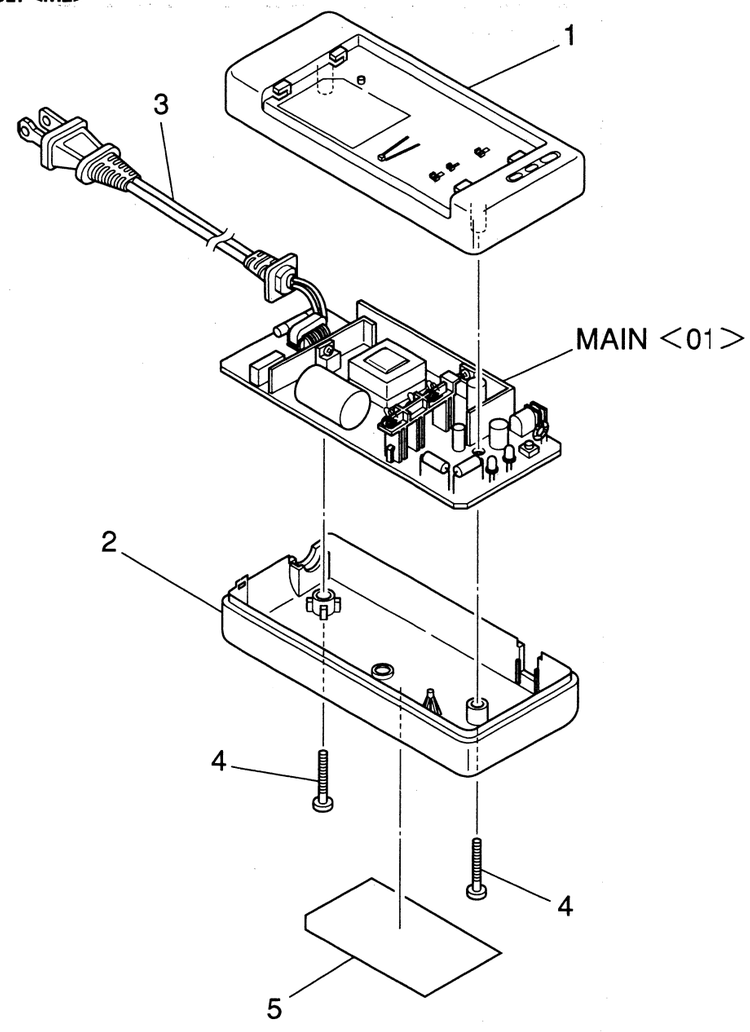
Refer to Fig. 6-2.
While the DEMONSTRATION mode is activated, a word of "DEMONSTRATION" is appearing on the screen scrolling from right to left.

SECTION 7
AC POWER ADAPTER (AA-V15U)

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

7.1 CABINET ASSEMNBLY <M2>



#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

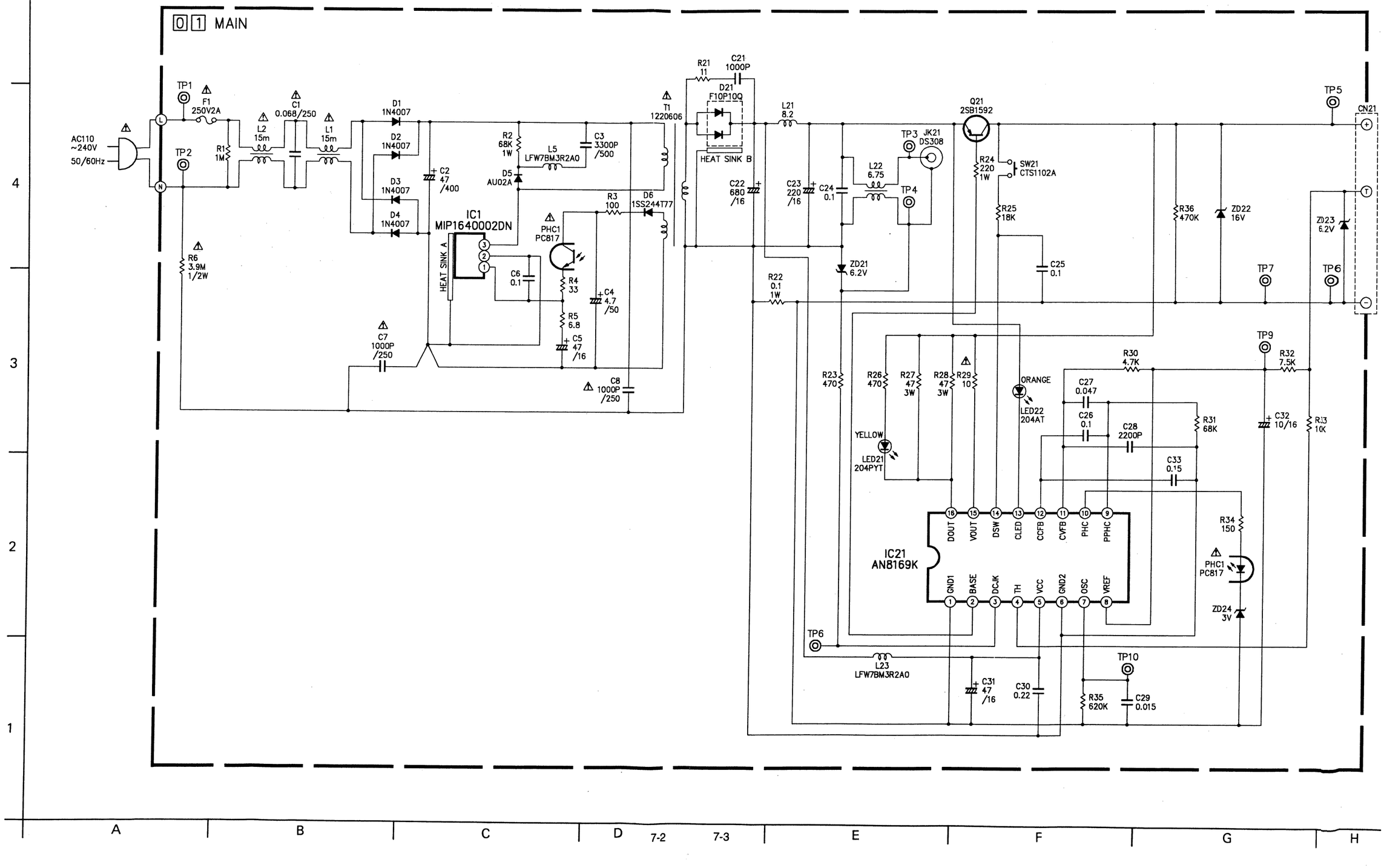
CABINET ASSEMBLY <M2>

	1	PTY10067-002	UPPER CASE ASSY
	2	PTY10067-012	LOWER CASE
⚠	3	YQ10531-057	POWER CORD
	4	YQ10531-011	SCREW , X2
	5	–	RATING LABEL

7.2 SCHEMATIC DIAGRAM

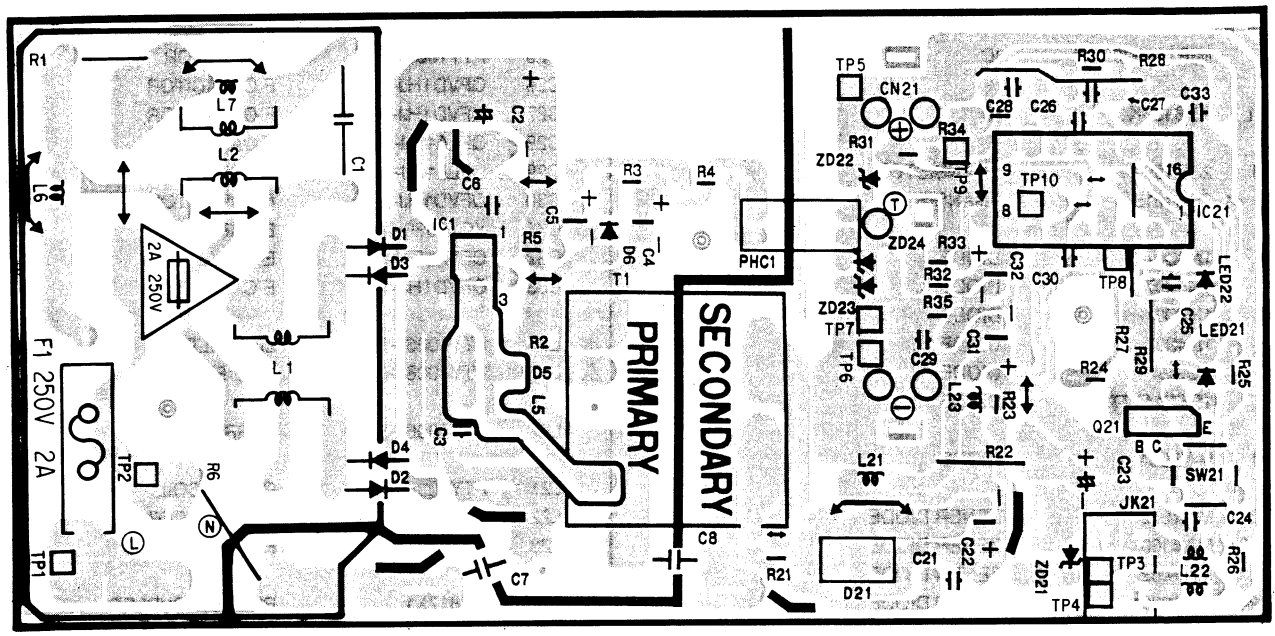
NOTE: ***When ordering parts, be sure to order according to the Part Number indicated in the Parts List.***

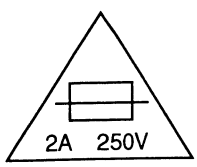
Safety precaitons
The components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended partds.



A B C D 7-2 7-3 E F G H

7.3 CIRCUIT BOARD





CAUTION:
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATED FUSE.

ATTENTION:
POUR UNE PROTECTION PERMANENTE CONTRE LES RISQUE D'INCENDE, REMPLACER LE FUSIBLE PAR UN AUTRE DE MEME TYPE ET DE MEME TENSION.

7.4 ELECTRICAL PARTS LIST

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
**********	**********	**********	

MAIN BOARD ASSEMBLY <01>

PW1	PTY10067-501	MAIN BOARD ASSY	
IC1	MIP1640002DN	IC	
IC21	AN8169K	IC	
Q21	2SB1592	TRANSISTOR	
or	2SA1615	TRANSISTOR	
D1	1N4007	DIODE	
D2	1N4007	DIODE	
D3	1N4007	DIODE	
D4	1N4007	DIODE	
D5	AU02A	DIODE	
D6	1SS244T77	DIODE	
D21	MA7D61	DIODE	
ZD21	MA4062	ZENER DIODE	
ZD22	MA4160	ZENER DIODE	
ZD23	MA4062	ZENER DIODE	
ZD24	MA4030	ZENER DIODE	
LED21	YQ10531-543	LED	
LED22	YQ10531-541	LED	
R1	QRN141J-105	RESISTOR	1MΩ,1/4W
R2	QRL01DJ-683X	CMF RESISTOR	68kΩ,1W
R3	QRZ0125-101	RESISTOR	100Ω,1/4W
R4	QRZ0125-330	RESISTOR	33Ω, 1/4W
R5	QRZ0125-6R8	RESISTOR	6.8Ω,1/4W
⚠ R6	QRZ9037-395	COMP. RESISTOR	3.9MΩ,1/2W
R21	PTY20080-512	RESISTOR	11Ω,1/4W
R22	QRZ0192-R10X	MF RESISTOR	0.1Ω,1W
R23	QRZ0125-471	RESISTOR	470Ω,1/4W
R24	QRL01DJ-221X	CMF RESISTOR	220Ω,1W
R25	QRZ0125-183	RESISTOR	18kΩ,1/4W
R26	QRZ0125-471	RESISTOR	470Ω,1/4W
R27	QRL037J-470	CMF RESISTOR	47Ω,3W
R28	QRL037J-470	CMF RESISTOR	47Ω,3W
⚠ R29	QRZ9005-100	F RESISTOR	10kΩ,1/4W
R30	QRZ0125-472	RESISTOR	4.7kΩ,1/4W
R31	QRZ0125-683	RESISTOR	68kΩ,1/4W
R32	QRA141F-7501	MF RESISTOR	7.5kΩ,1/4W
R33	QRZ0125-103	RESISTOR	10Ωk,1/4W
R34	QRZ0125-151	RESISTOR	150Ω,1/4W
R35	QRA141F-6203	MF RESISTOR	620kΩ,1/4W
R36	QRZ0125-474	RESISTOR	470kΩ,1/4W
⚠ C1	YQ10626-401	F CAPACITOR	0.068μF,250V
C2	YQ10626-402	E CAPACITOR	47μF,400V
C3	YQ10626-403	CAPACITOR	3300pF,500V
C4	QWHA1HM-475	E CAPACITOR	4.7μF,50V
C5	YQ10626-404	E CAPACITOR	47μF,16V
C6	PTY10067-511	CAPACITOR	0.1μF,25V
⚠ C7	YQ10531-514	CAPACITOR	1000pF,250V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ C8	YQ10531-514	CAPACITOR	1000pF,250V
C21	YQ10626-408	CAPACITOR	1000pF,500V
C22	PTY20080-522	E CAPACITOR	680μF,16V
C23	QETA1CM-227	E CAPACITOR	220μF,16V
C24	PTY10067-511	CAPACITOR	0.1μF,25V
C25	PTY10067-511	CAPACITOR	0.1μF,25V
C26	QFVD1HJ-104	F CAPACITOR	0.1μF,50V
C27	QFVD1HJ-473	F CAPACITOR	0.047μF,50V
C28	QFLA1HJ-222	F CAPACITOR	0.0022μF,50V
C29	QFLA1HJ-153	F CAPACITOR	0.015μF,50V
C30	QFVD1HJ-224	F CAPACITOR	0.22μF,50V
C31	YQ10626-404	E CAPACITOR	47μF,16V
C32	QETA1CM-106	E CAPACITOR	10μF,16V
C33	QFVD1HJ-154	E CAPACITOR	0.15μF,50V
⚠ L1	PTY10067-522	LINE FILTER	
⚠ L2	PTY10067-522	LINE FILTER	
L5	PTY10067-521	FERRITE BEADS	
L21	PTY20080-533	CHOKE COIL	
L22	PTY20080-534	TROIDAL COIL	
L23	PTY10067-521	FERRITE BEADS	
⚠ PHC1	PC817X1	PHOTO COUPLER	
⚠ or	PS25011M	PHOTO COUPLER	
⚠ or	PS25011H	PHOTO COUPLER	
⚠ or	LTV817A	PHOTO COUPLER	
JK21	YQ10531-570	DC JACK	
⚠ T1	PTY20080-541	TRANS	
⚠ F1	YQ10441-008	FUSE	
SW21	PTY10067-531	SWITCH	
HS1	PTY10067-541	HEAT SINK A	
HS2	PTY10067-542	HEAT SINK B	
OT1	PTY10067-551	SCREW,X2	
TB1	PTY10067-561	TERMINAL 1,X2	
TB2	PTY10067-562	TERMINAL 2,X3	
HD1	PTY10067-571	TERMINAL HOLDER	